FIG.1

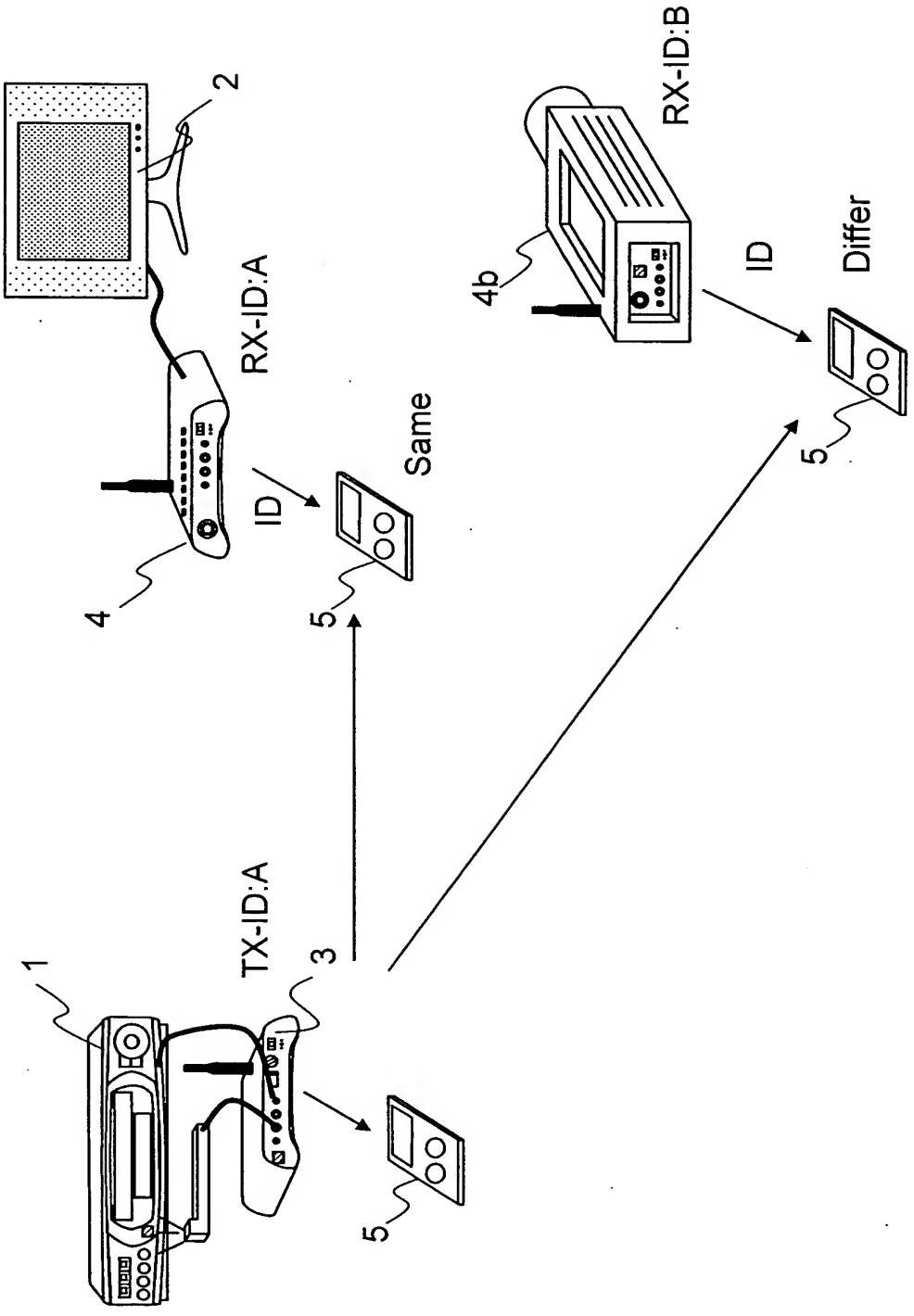


FIG.2

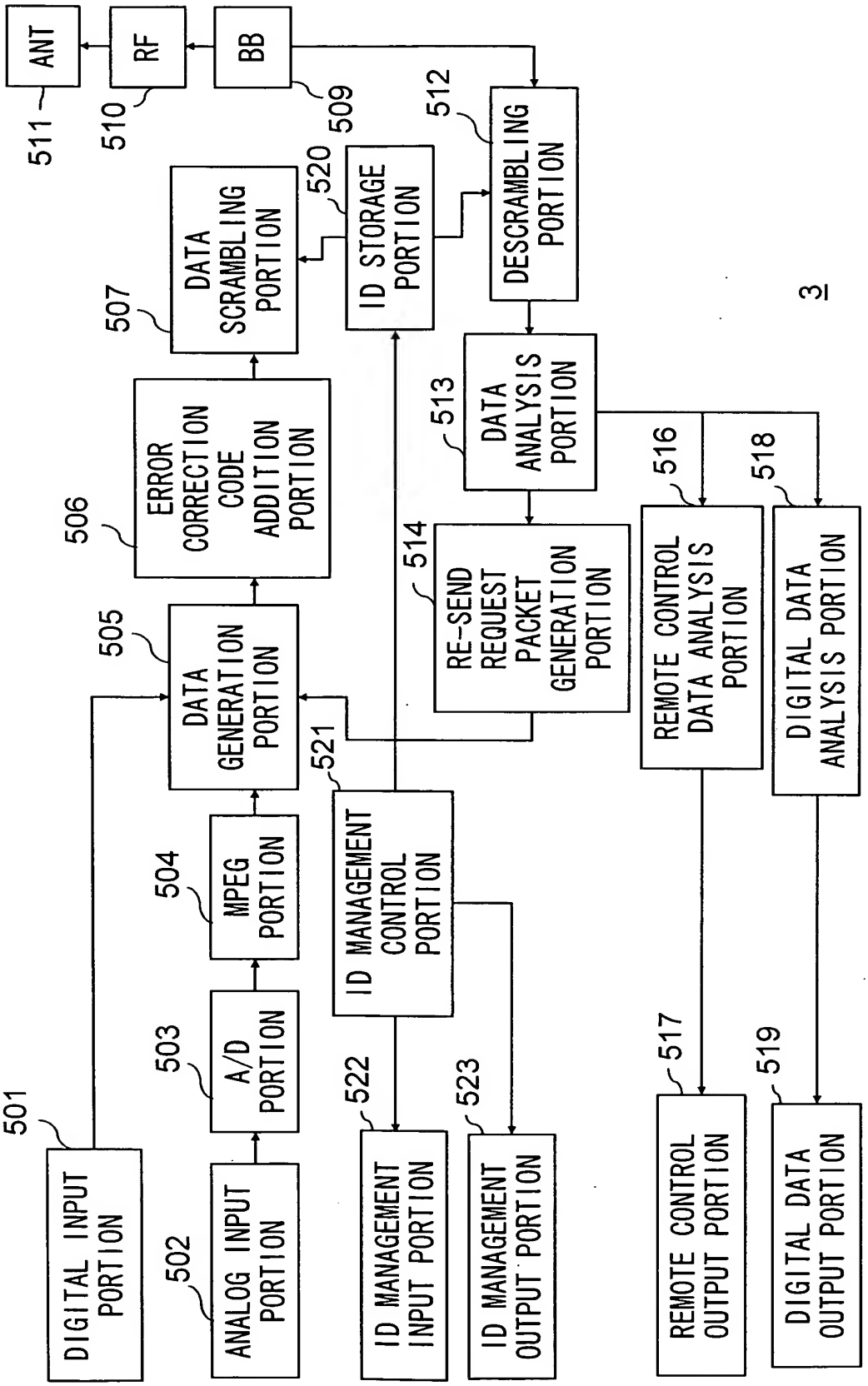

3
ANT
RF
BB
511
510
509
512
DESCRAMBLING PORTION
520
ID STORAGE PORTION
507
DATA SCRAMBLING PORTION
506
ERROR CORRECTION CODE ADDITION PORTION
513
DATA ANALYSIS PORTION
516
518
505
DATA GENERATION PORTION
514
RE-SEND REQUEST PACKET GENERATION PORTION
REMOTE CONTROL DATA ANALYSIS PORTION
DIGITAL DATA ANALYSIS PORTION
521
504
MPEG PORTION
ID MANAGEMENT CONTROL PORTION
503
A/D PORTION
501
522
523
517
519
DIGITAL INPUT PORTION
ANALOG INPUT PORTION
ID MANAGEMENT INPUT PORTION
ID MANAGEMENT OUTPUT PORTION
REMOTE CONTROL OUTPUT PORTION
DIGITAL DATA OUTPUT PORTION
502

FIG.3

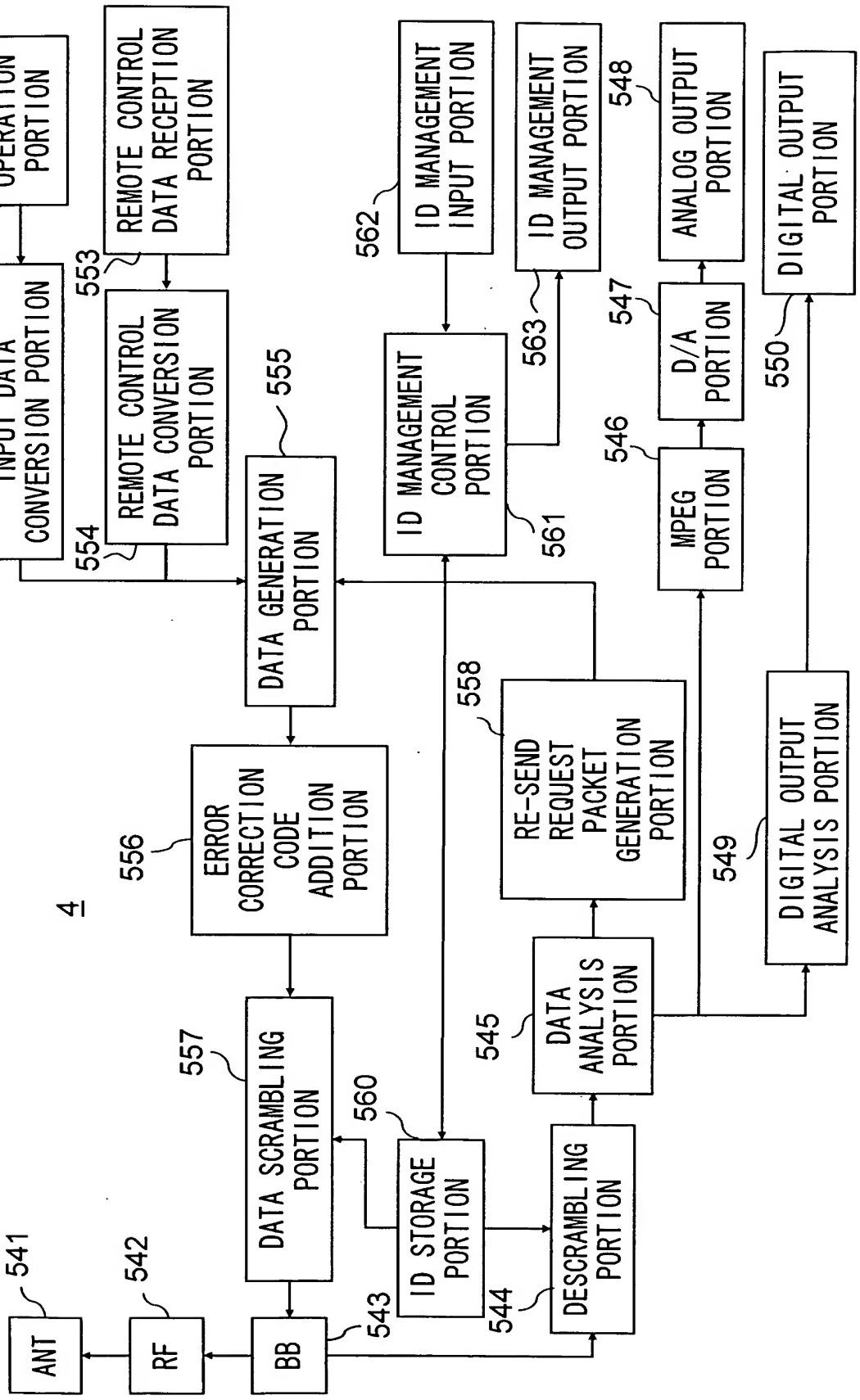

4
ANT
541
RF
542
BB
543
DESCRAMBLING PORTION
544
ID STORAGE PORTION
560
DATA SCRAMBLING PORTION
557
DATA ANALYSIS PORTION
545
ERROR CORRECTION CODE ADDITION PORTION
556
RE-SEND REQUEST PACKET GENERATION PORTION
558
DATA GENERATION PORTION
555
DIGITAL OUTPUT ANALYSIS PORTION
549
MPEG PORTION
546
D/A PORTION
547
ANALOG OUTPUT PORTION
548
DIGITAL OUTPUT PORTION
550
ID MANAGEMENT CONTROL PORTION
561
ID MANAGEMENT OUTPUT PORTION
563
ID MANAGEMENT INPUT PORTION
562
REMOTE CONTROL DATA CONVERSION PORTION
554
REMOTE CONTROL DATA RECEPTION PORTION
553
INPUT DATA CONVERSION PORTION
552
OPERATION PORTION
551

FIG.4

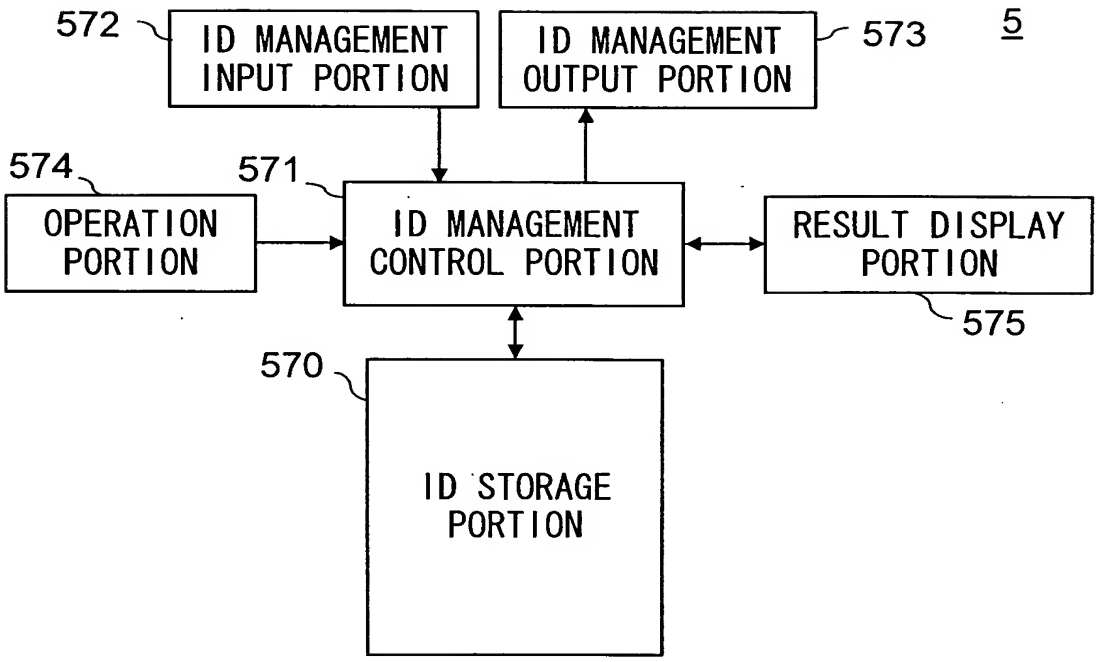

572
ID MANAGEMENT INPUT PORTION
ID MANAGEMENT OUTPUT PORTION
573
5
574
571
OPERATION PORTION
ID MANAGEMENT CONTROL PORTION
RESULT DISPLAY PORTION
575
570
ID STORAGE PORTION

FIG.5

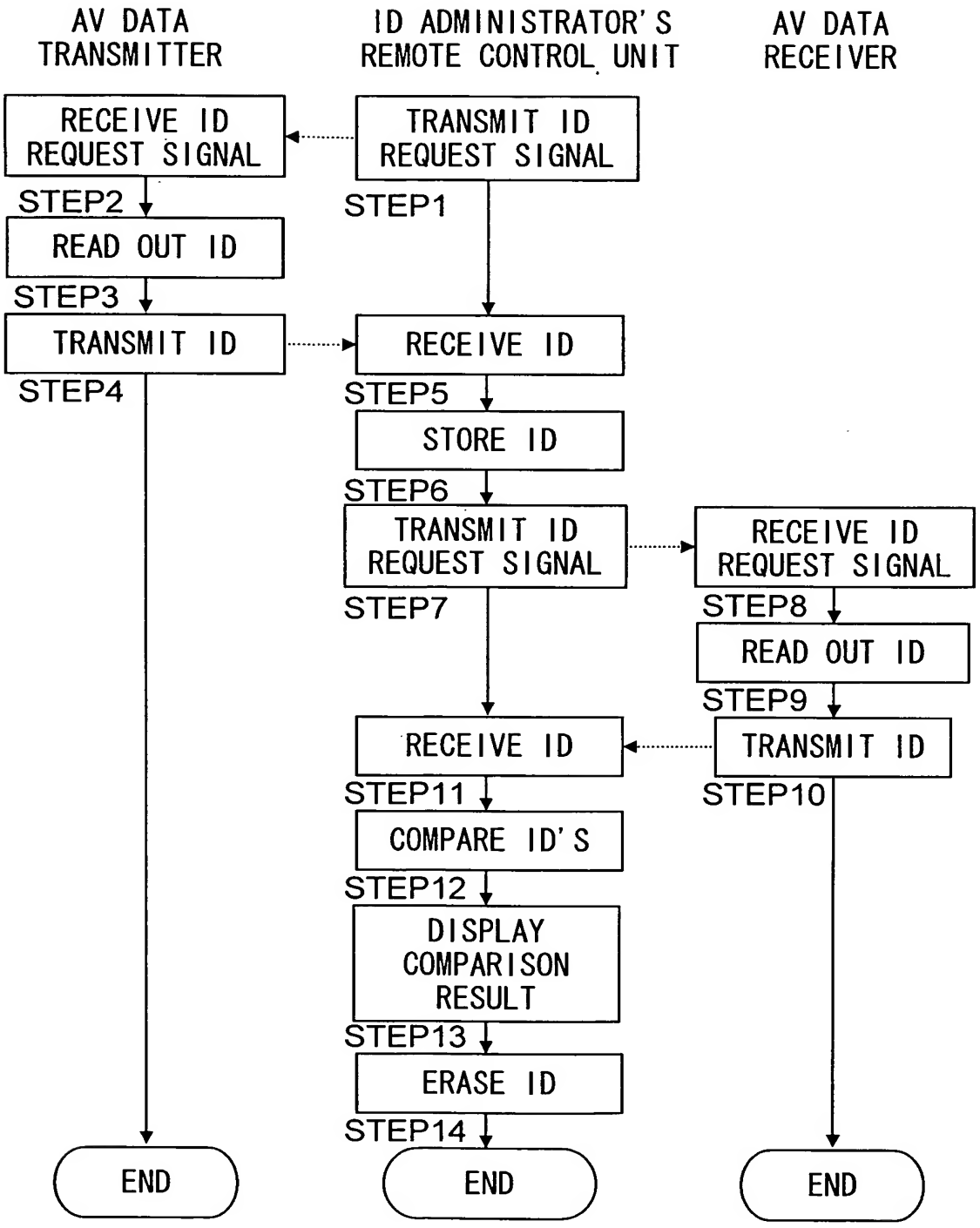

AV DATA TRANSMITTER
ID ADMINISTRATOR'S REMOTE CONTROL UNIT
AV DATA RECEIVER
TRANSMIT ID REQUEST SIGNAL
STEP1
RECEIVE ID REQUEST SIGNAL
STEP2
READ OUT ID
STEP3
TRANSMIT ID
STEP4
RECEIVE ID
STEP5
STORE ID
STEP6
TRANSMIT ID REQUEST SIGNAL
STEP7
RECEIVE ID REQUEST SIGNAL
STEP8
READ OUT ID
STEP9
TRANSMIT ID
STEP10
RECEIVE ID
STEP11
COMPARE ID'S
STEP12
DISPLAY COMPARISON RESULT
STEP13
ERASE ID
STEP14
END
END
END

FIG.6A

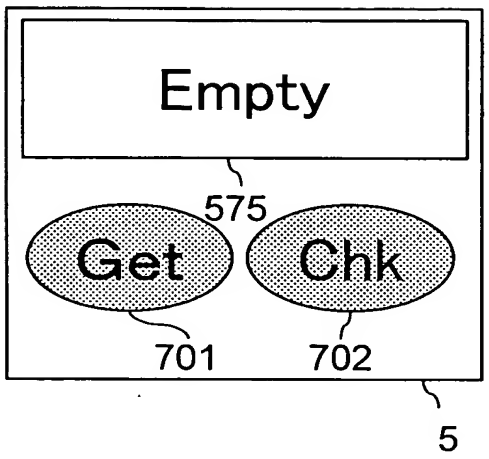


FIG.6B

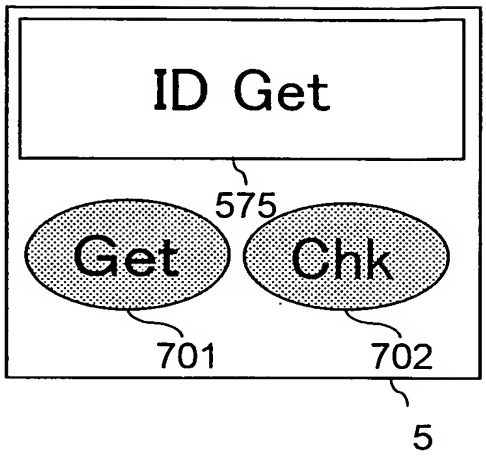


FIG.6C

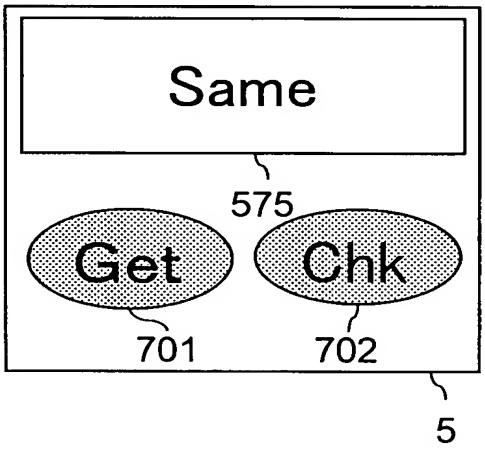


FIG.6D

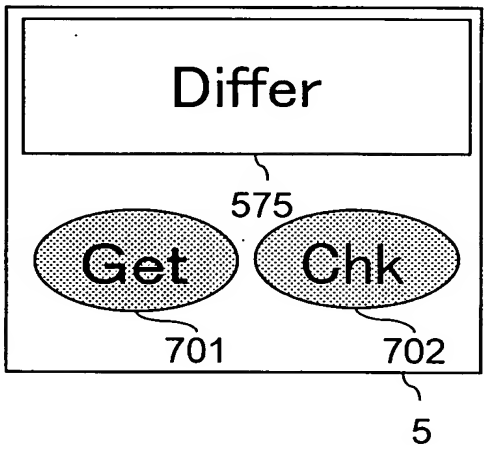


FIG.7

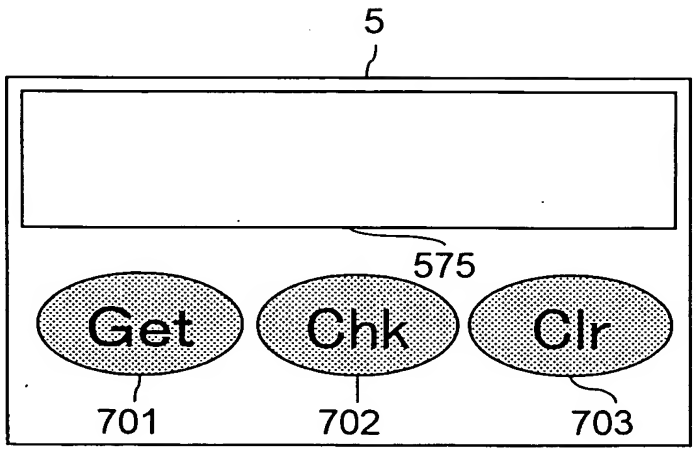


FIG.8

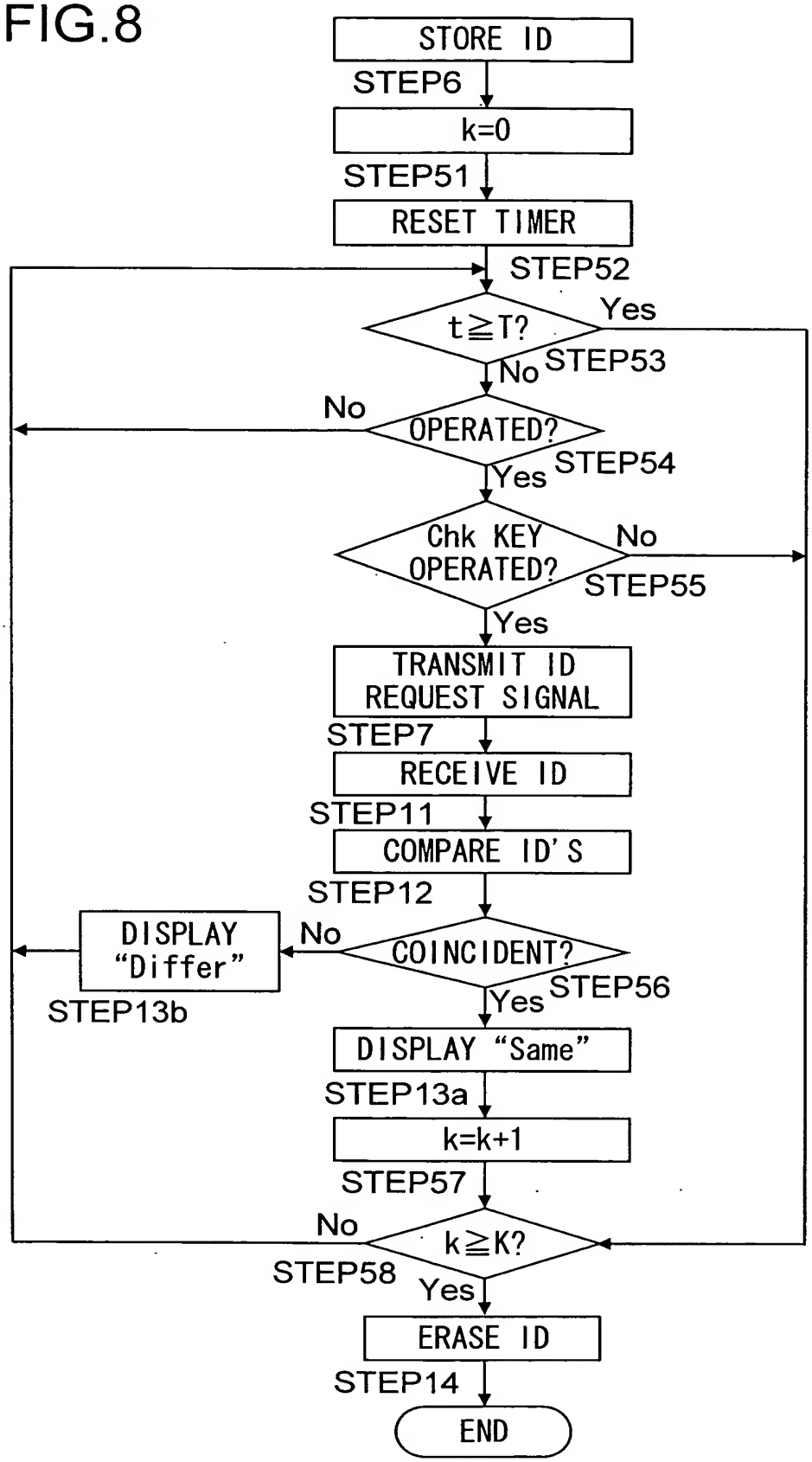

STORE ID
STEP6
k=0
STEP51
RESET TIMER
STEP52
t≧T?
Yes
No
STEP53
No
OPERATED?
STEP54
Yes
Chk KEY OPERATED?
No
STEP55
Yes
TRANSMIT ID REQUEST SIGNAL
STEP7
RECEIVE ID
STEP11
COMPARE ID'S
STEP12
DISPLAY "Differ"
No
COINCIDENT?
STEP13b
Yes
STEP56
DISPLAY "Same"
STEP13a
k=k+1
STEP57
No
k≧K?
STEP58
Yes
ERASE ID
STEP14
END

FIG.9

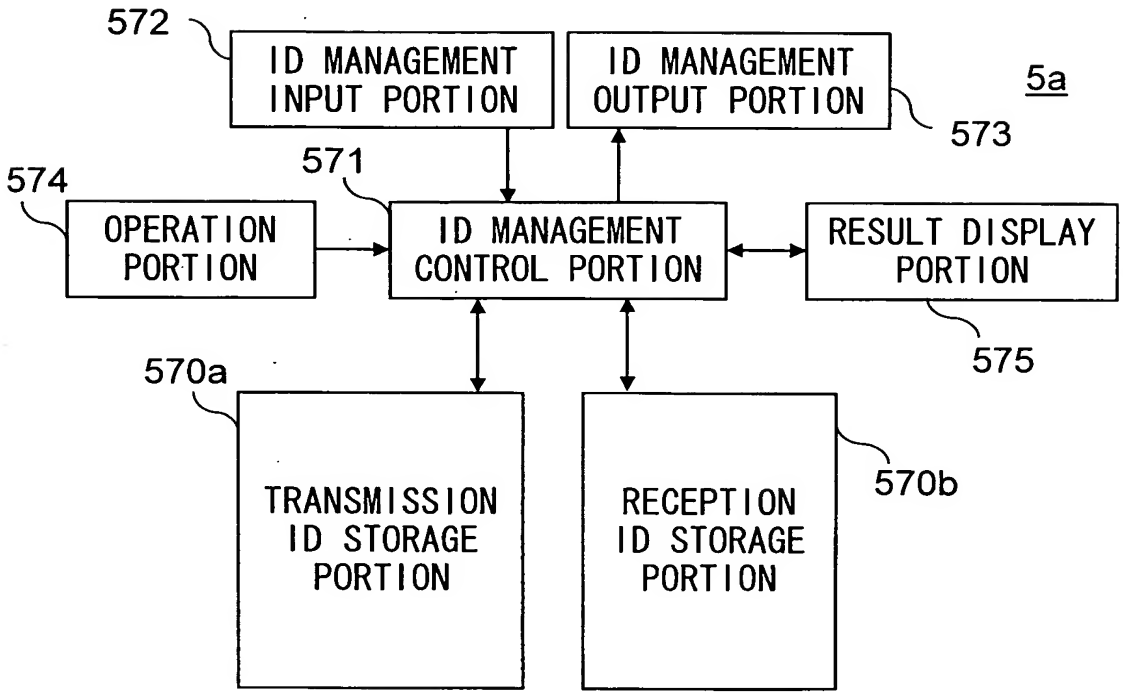

572
ID MANAGEMENT INPUT PORTION
ID MANAGEMENT OUTPUT PORTION
5a
573
571
574
OPERATION PORTION
ID MANAGEMENT CONTROL PORTION
RESULT DISPLAY PORTION
575
570a
TRANSMISSION ID STORAGE PORTION
RECEPTION ID STORAGE PORTION
570b

FIG.10

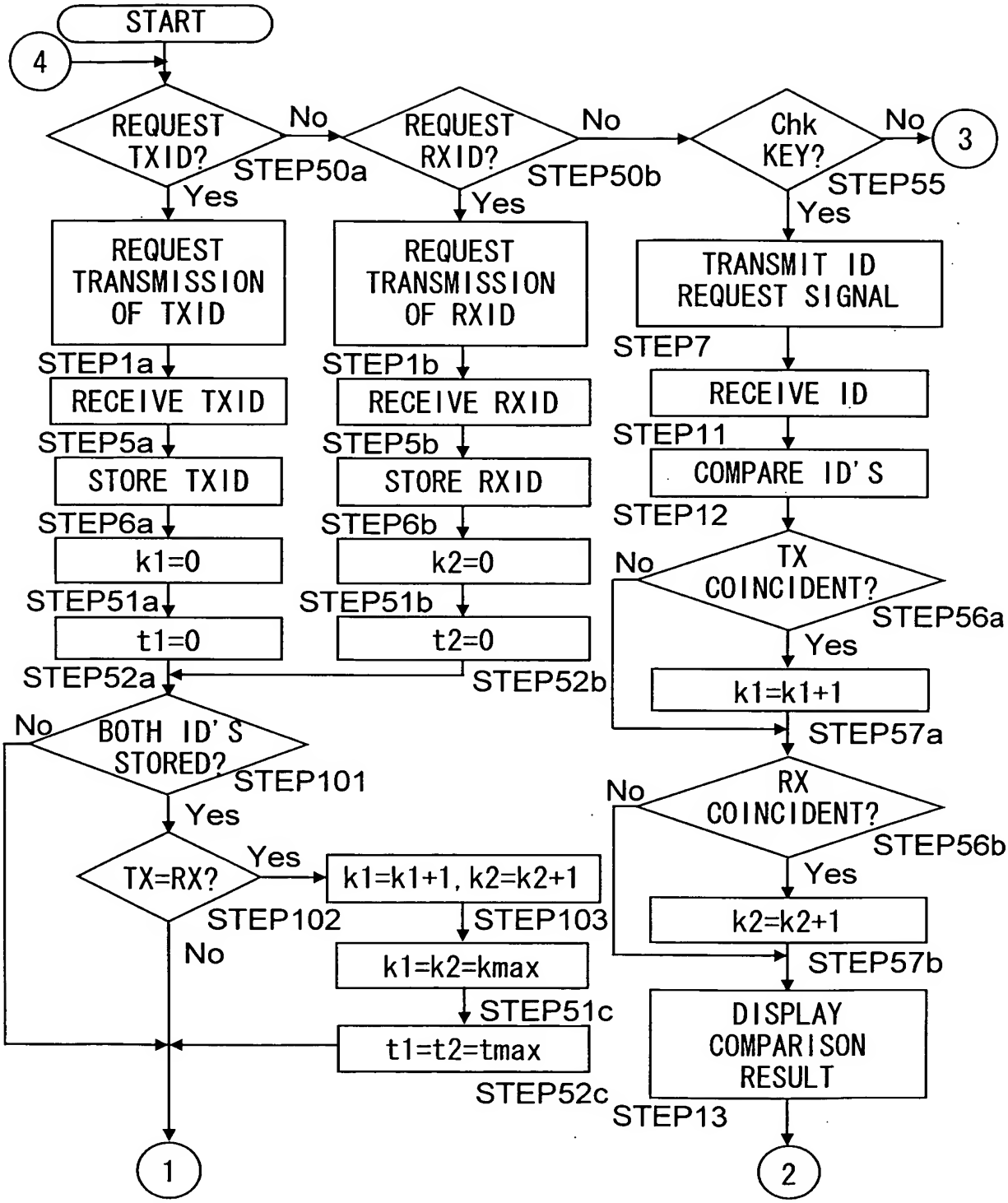

START
4
REQUEST TXID?
STEP50a
No
Yes
REQUEST RXID?
STEP50b
No
Yes
Chk KEY?
STEP55
No
3
Yes
REQUEST TRANSMISSION OF TXID
STEP1a
RECEIVE TXID
STEP5a
STORE TXID
STEP6a
k1=0
STEP51a
t1=0
STEP52a
REQUEST TRANSMISSION OF RXID
STEP1b
RECEIVE RXID
STEP5b
STORE RXID
STEP6b
k2=0
STEP51b
t2=0
STEP52b
TRANSMIT ID REQUEST SIGNAL
STEP7
RECEIVE ID
STEP11
COMPARE ID'S
STEP12
TX COINCIDENT?
STEP56a
No
Yes
k1=k1+1
STEP57a
RX COINCIDENT?
STEP56b
No
Yes
k2=k2+1
STEP57b
DISPLAY COMPARISON RESULT
STEP13
2
BOTH ID'S STORED?
STEP101
No
Yes
TX=RX?
STEP102
Yes
No
k1=k1+1, k2=k2+1
STEP103
k1=k2=kmax
STEP51c
t1=t2=tmax
STEP52c
1

FIG.11

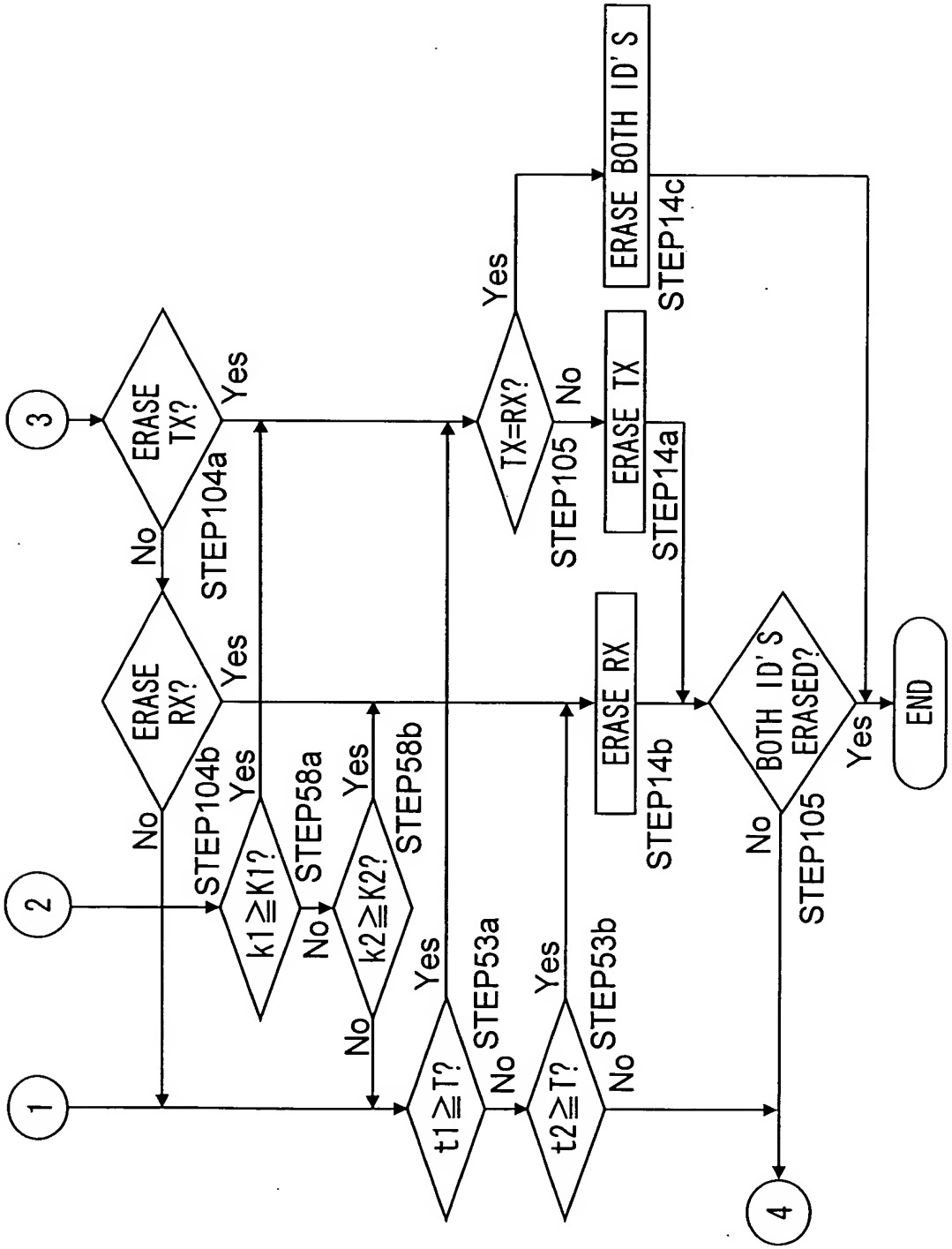

1
2
3
4
ERASE TX?
Yes
No
STEP104a
ERASE RX?
Yes
No
STEP104b
k1≧K1?
Yes
No
STEP58a
k2≧K2?
Yes
No
STEP58b
t1≧T?
Yes
No
STEP53a
t2≧T?
Yes
No
STEP53b
TX=RX?
Yes
No
STEP105
ERASE BOTH ID'S
STEP14c
ERASE TX
STEP14a
ERASE RX
STEP14b
BOTH ID'S ERASED?
Yes
No
STEP105
END

FIG.12A

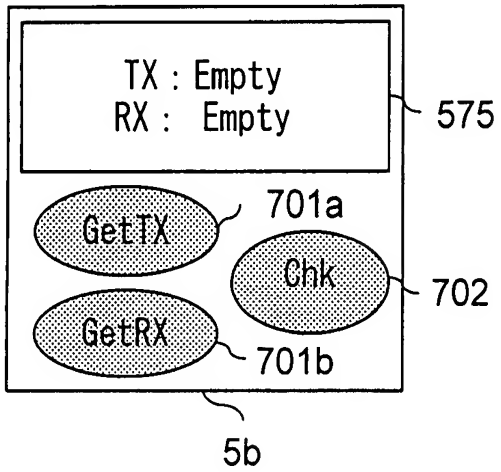


FIG.12B

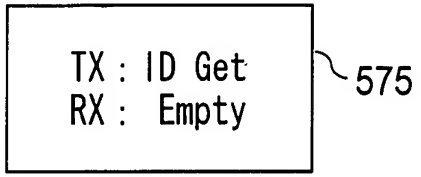


FIG.12C

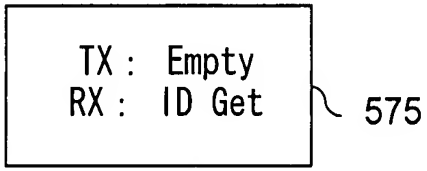


FIG.12D

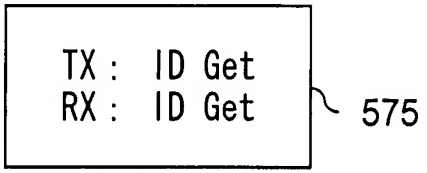


FIG.12E

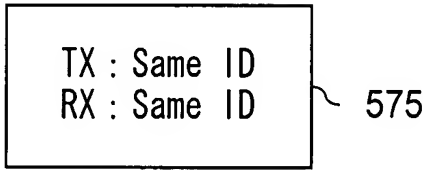


FIG.12F

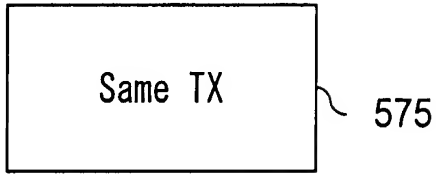


FIG.12G

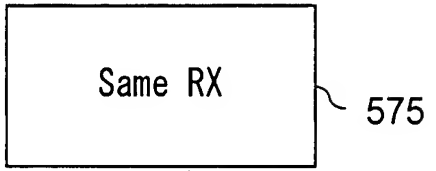


FIG.12H

FIG.12I

10/543009

FIG.13

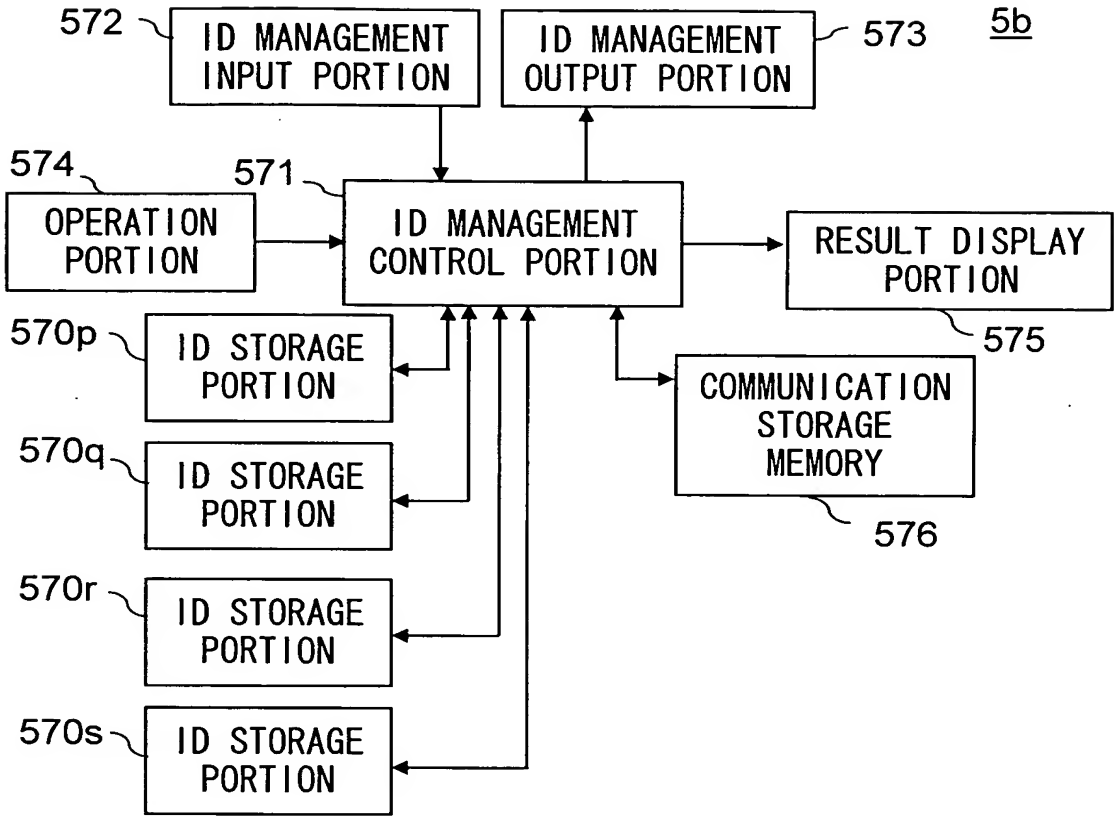

572
ID MANAGEMENT INPUT PORTION
ID MANAGEMENT OUTPUT PORTION
573
5b
574
571
OPERATION PORTION
ID MANAGEMENT CONTROL PORTION
RESULT DISPLAY PORTION
575
570p
ID STORAGE PORTION
COMMUNICATION STORAGE MEMORY
570q
ID STORAGE PORTION
576
570r
ID STORAGE PORTION
570s
ID STORAGE PORTION

FIG.14

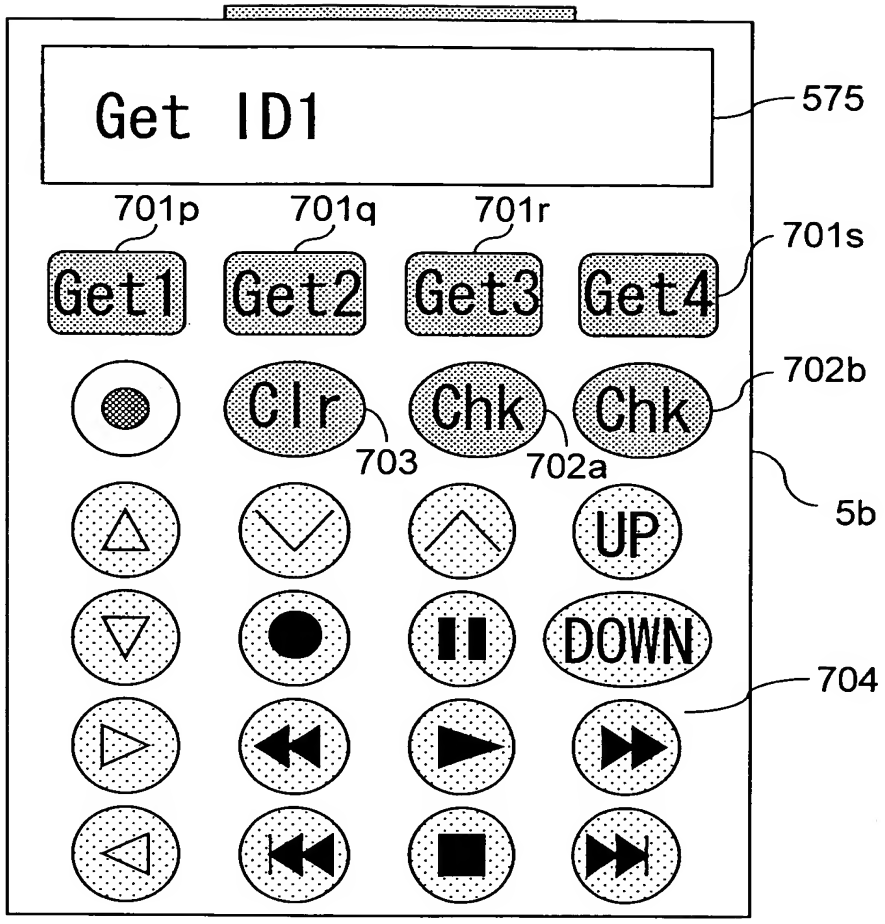

Get ID1
575
701p
701q
701r
701s
Get1
Get2
Get3
Get4
Clr
Chk
Chk
702b
703
702a
5b
UP
DOWN
704

FIG.15

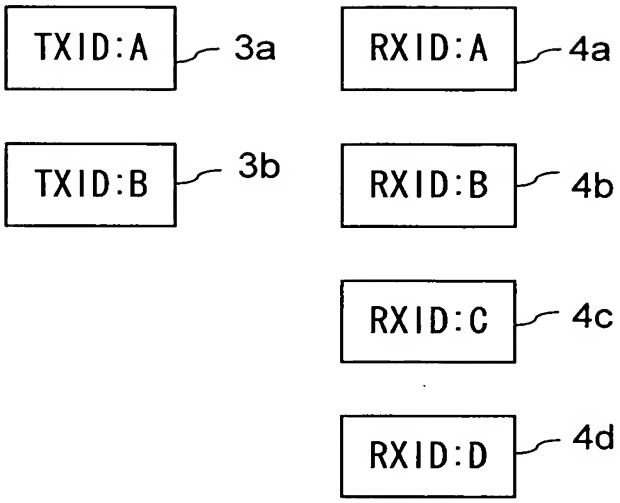


FIG.16A

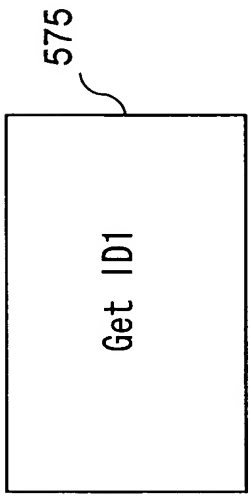


FIG.16B

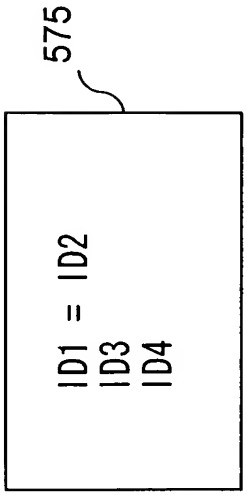


FIG.16C

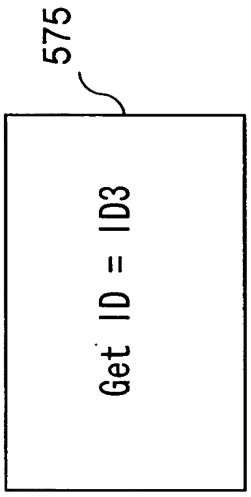


FIG.16D

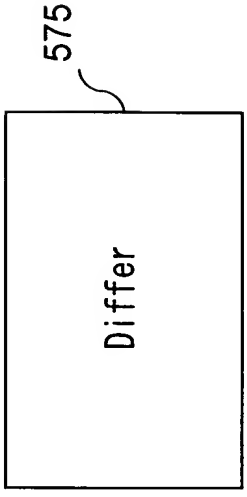


FIG.17

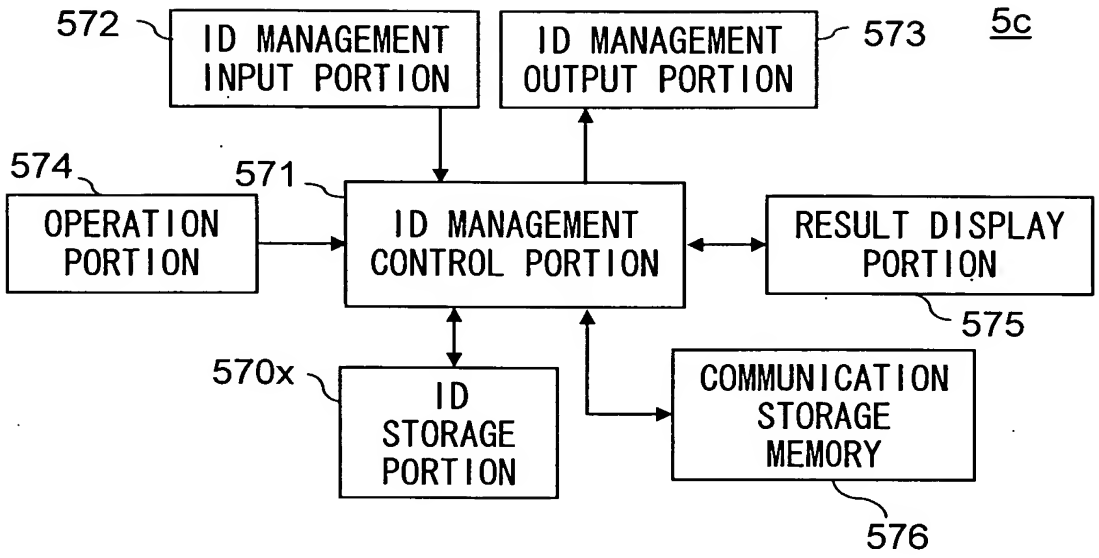

572
ID MANAGEMENT INPUT PORTION
ID MANAGEMENT OUTPUT PORTION
573
5c
574
571
OPERATION PORTION
ID MANAGEMENT CONTROL PORTION
RESULT DISPLAY PORTION
575
570x
ID STORAGE PORTION
COMMUNICATION STORAGE MEMORY
576

FIG.18

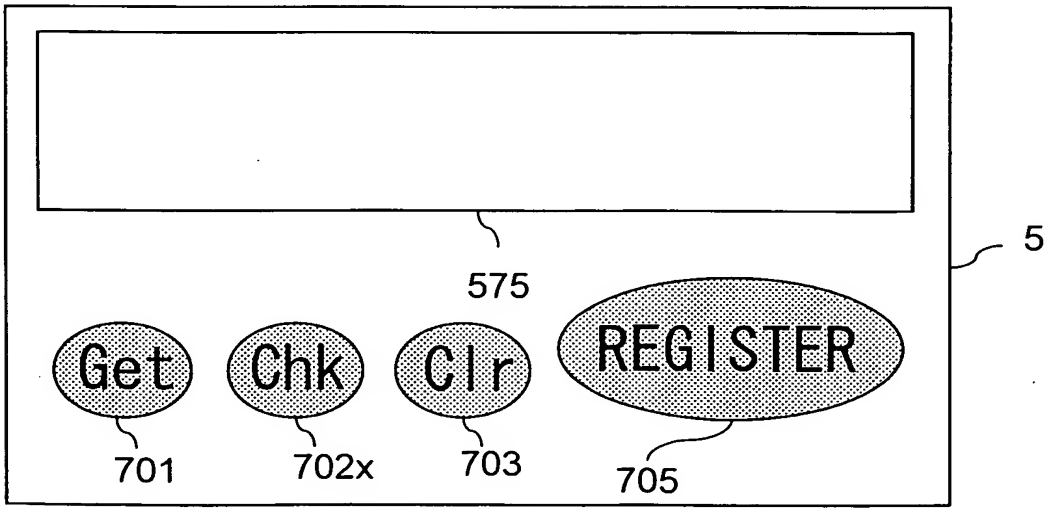

575
5
Get
Chk
Clr
REGISTER
701
702x
703
705

FIG.19

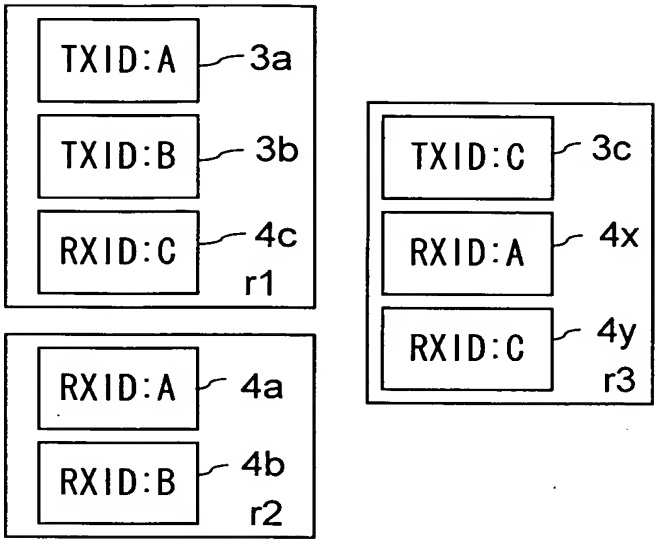


FIG.20

ADDRESS	ID	ID TYPE	INSTALLATION SITE	APPLIANCE TYPE
a1	A	TX	r1	STB
a2	B	TX	r1	TUNER
a3	C	RX	r1	TV
a4	A	RX	r2	TV
a5	B	RX	r2	MONITOR
a6	C	TX	r3	VTR
a7	A	RX	r3	PROJECTOR
a8	C	RX	r3	TV

FIG.21

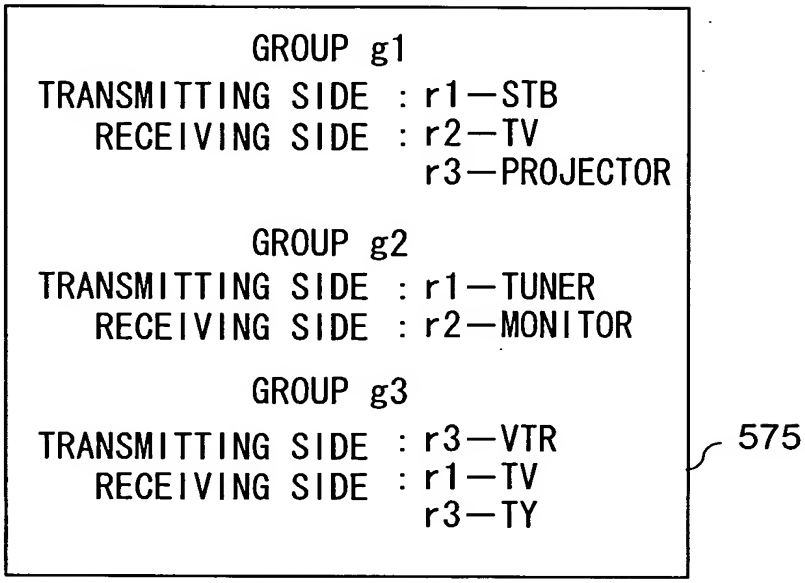

GROUP g1
TRANSMITTING SIDE : r1—STB
RECEIVING SIDE : r2—TV
r3—PROJECTOR
GROUP g2
TRANSMITTING SIDE : r1—TUNER
RECEIVING SIDE : r2—MONITOR
GROUP g3
TRANSMITTING SIDE : r3—VTR
RECEIVING SIDE : r1—TV
r3—TY
575

FIG.22

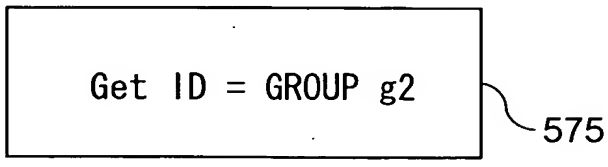

Get ID = GROUP g2
575

FIG.23

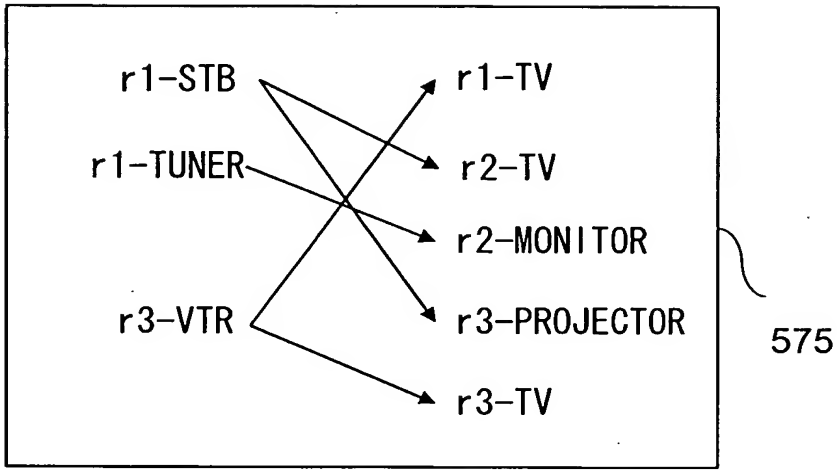

r1-STB
r1-TUNER
r3-VTR
r1-TV
r2-TV
r2-MONITOR
r3-PROJECTOR
r3-TV
575

FIG.24B

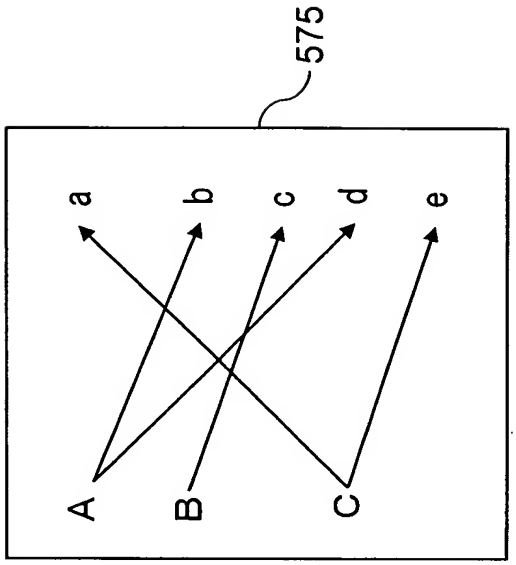


FIG.24A

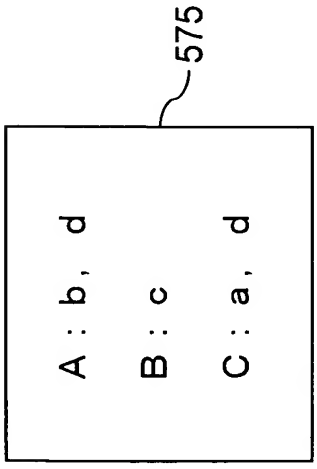


FIG.25

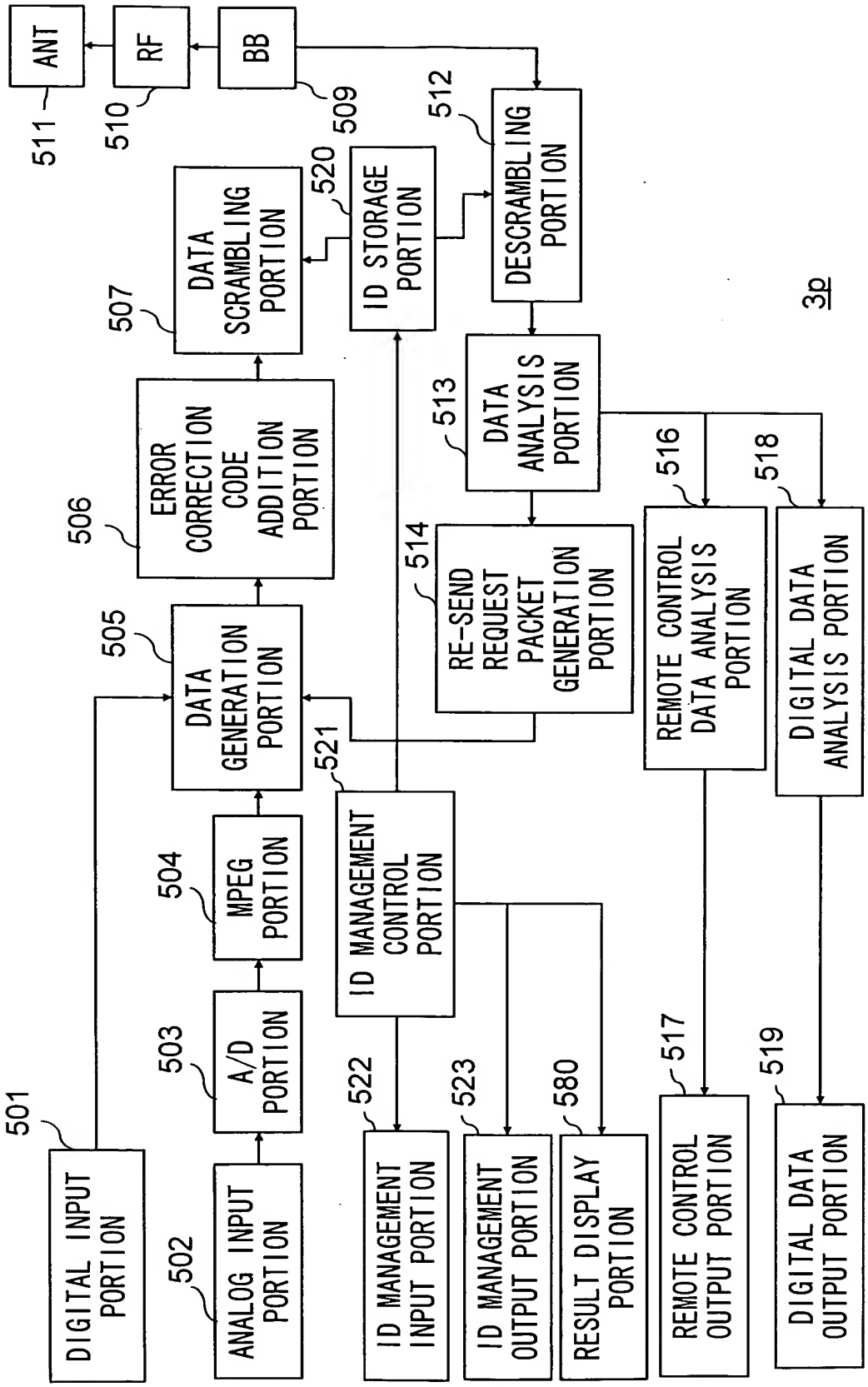

ANT
RF
BB
511
510
509
512
DESCRAMBLING PORTION
520
ID STORAGE PORTION
507
DATA SCRAMBLING PORTION
506
ERROR CORRECTION CODE ADDITION PORTION
513
DATA ANALYSIS PORTION
514
RE-SEND REQUEST PACKET GENERATION PORTION
516
REMOTE CONTROL DATA ANALYSIS PORTION
518
DIGITAL DATA ANALYSIS PORTION
505
DATA GENERATION PORTION
521
ID MANAGEMENT CONTROL PORTION
504
MPEG PORTION
503
A/D PORTION
501
DIGITAL INPUT PORTION
502
ANALOG INPUT PORTION
522
ID MANAGEMENT INPUT PORTION
523
ID MANAGEMENT OUTPUT PORTION
580
RESULT DISPLAY PORTION
517
REMOTE CONTROL OUTPUT PORTION
519
DIGITAL DATA OUTPUT PORTION
3p

FIG.26

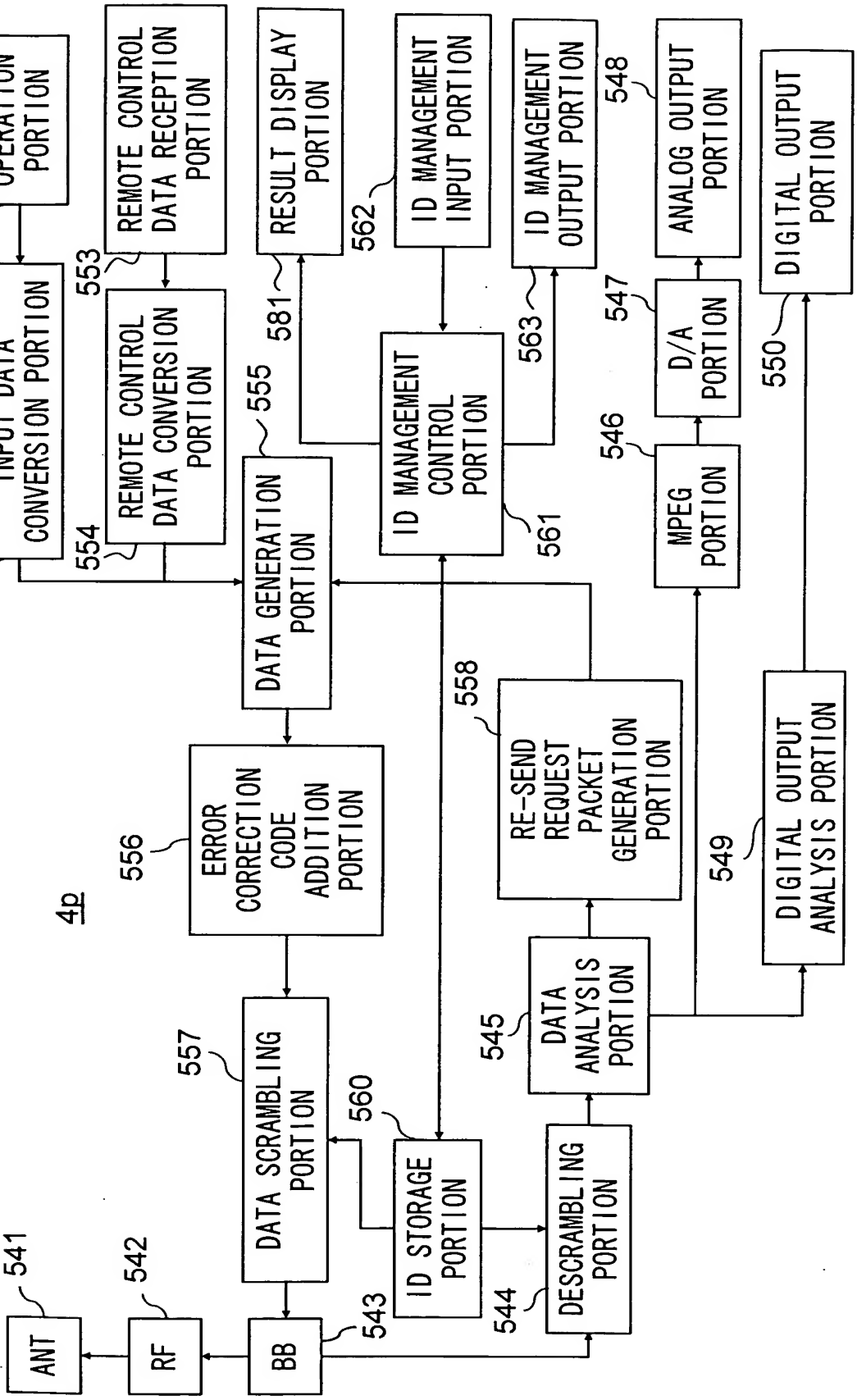

4p
ANT
541
RF
542
BB
543
DESCRAMBLING PORTION
544
ID STORAGE PORTION
560
DATA SCRAMBLING PORTION
557
DATA ANALYSIS PORTION
545
ERROR CORRECTION CODE ADDITION PORTION
556
RE-SEND REQUEST PACKET GENERATION PORTION
558
DIGITAL OUTPUT ANALYSIS PORTION
549
DATA GENERATION PORTION
555
ID MANAGEMENT CONTROL PORTION
561
MPEG PORTION
546
D/A PORTION
547
DIGITAL OUTPUT PORTION
550
ANALOG OUTPUT PORTION
548
ID MANAGEMENT OUTPUT PORTION
563
ID MANAGEMENT INPUT PORTION
562
RESULT DISPLAY PORTION
581
REMOTE CONTROL DATA CONVERSION PORTION
554
REMOTE CONTROL DATA RECEPTION PORTION
553
INPUT DATA CONVERSION PORTION
552
OPERATION PORTION
551

FIG.27

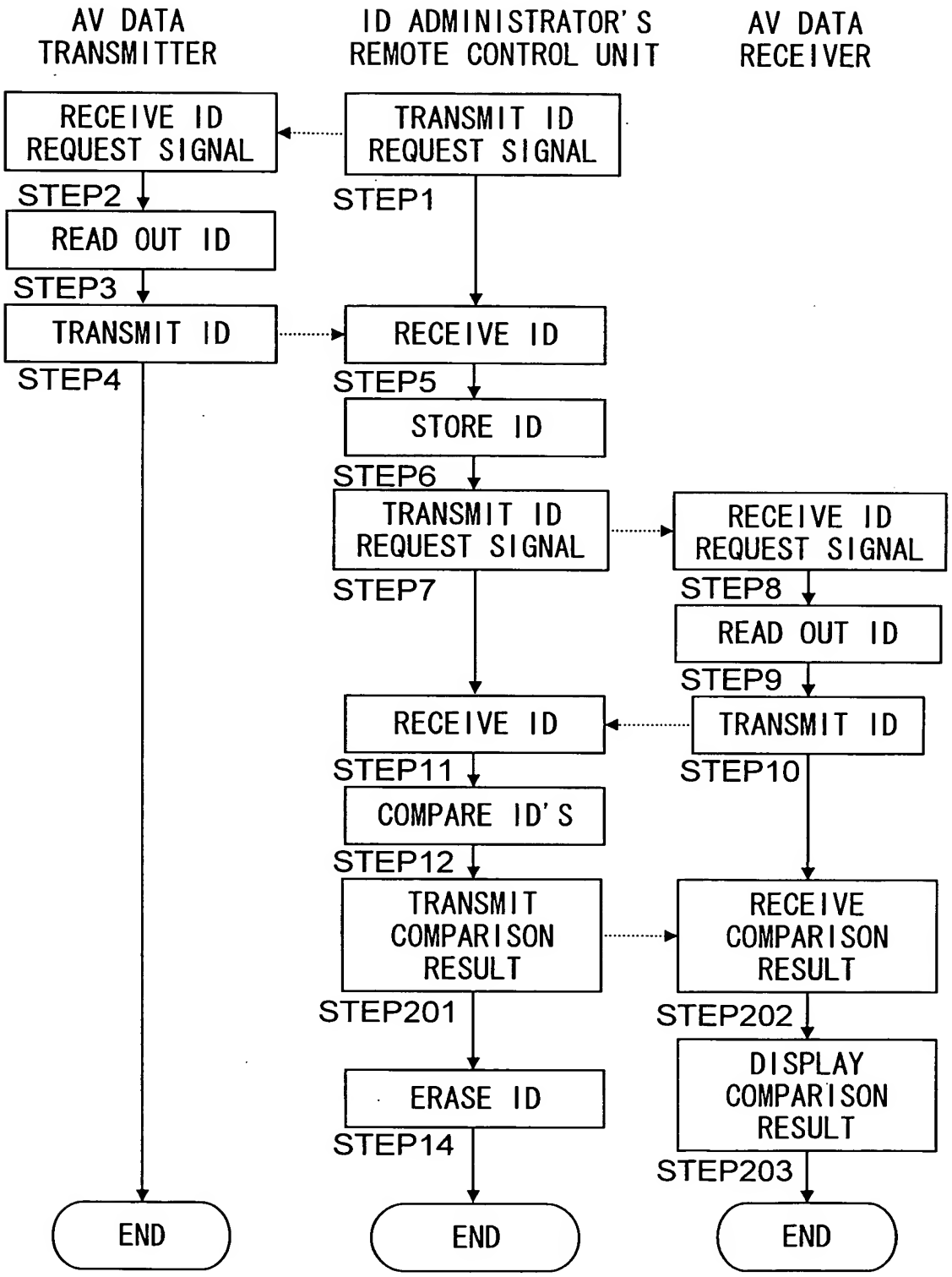

AV DATA TRANSMITTER
ID ADMINISTRATOR'S REMOTE CONTROL UNIT
AV DATA RECEIVER
TRANSMIT ID REQUEST SIGNAL
STEP1
RECEIVE ID REQUEST SIGNAL
STEP2
READ OUT ID
STEP3
TRANSMIT ID
STEP4
RECEIVE ID
STEP5
STORE ID
STEP6
TRANSMIT ID REQUEST SIGNAL
STEP7
RECEIVE ID REQUEST SIGNAL
STEP8
READ OUT ID
STEP9
TRANSMIT ID
STEP10
RECEIVE ID
STEP11
COMPARE ID'S
STEP12
TRANSMIT COMPARISON RESULT
STEP201
RECEIVE COMPARISON RESULT
STEP202
DISPLAY COMPARISON RESULT
STEP203
ERASE ID
STEP14
END
END
END

FIG.28

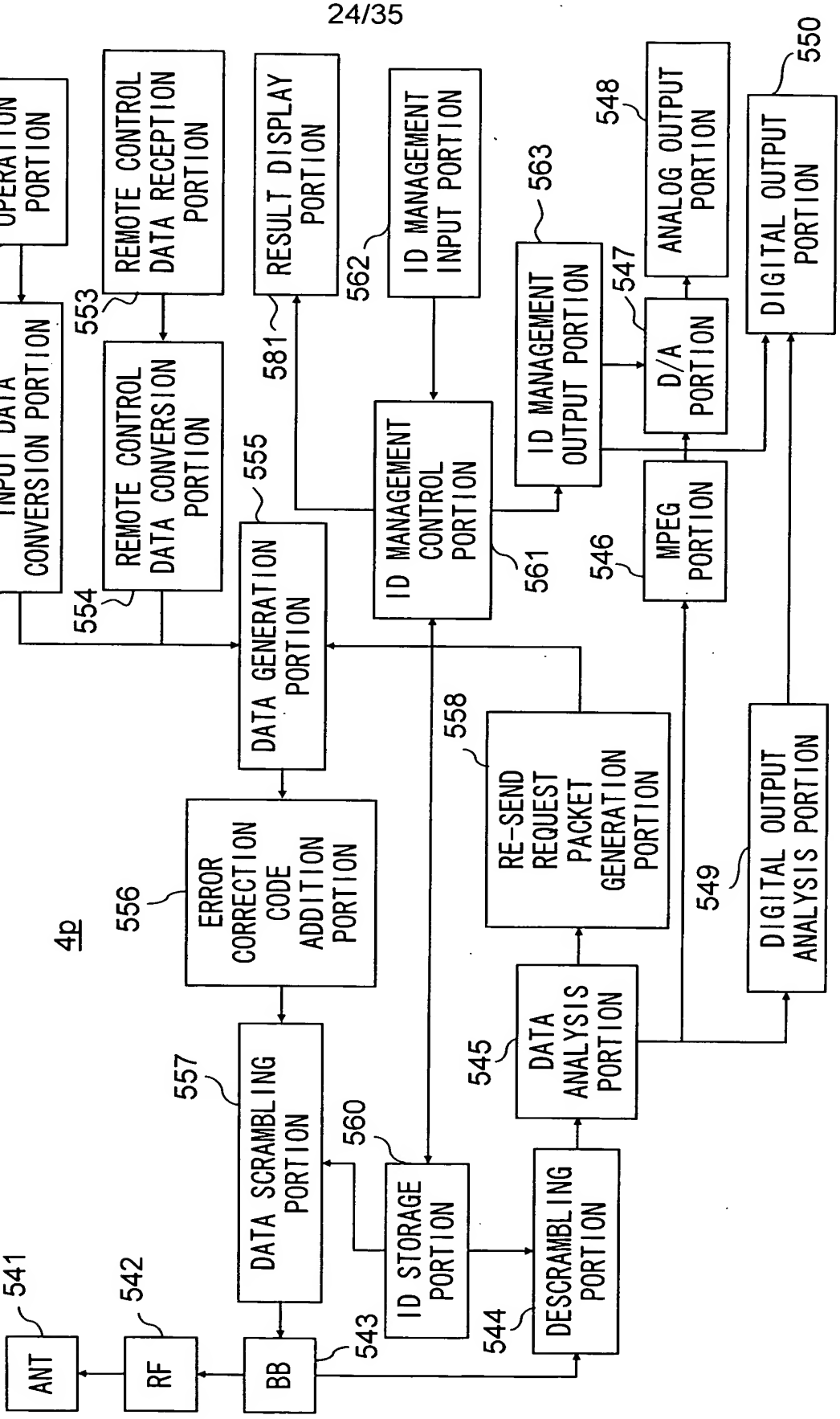

4p
ANT
541
RF
542
BB
543
DESCRAMBLING PORTION
544
DATA ANALYSIS PORTION
545
MPEG PORTION
546
D/A PORTION
547
ANALOG OUTPUT PORTION
548
DIGITAL OUTPUT ANALYSIS PORTION
549
DIGITAL OUTPUT PORTION
550
OPERATION PORTION
551
INPUT DATA CONVERSION PORTION
552
REMOTE CONTROL DATA RECEPTION PORTION
553
REMOTE CONTROL DATA CONVERSION PORTION
554
DATA GENERATION PORTION
555
ERROR CORRECTION CODE ADDITION PORTION
556
DATA SCRAMBLING PORTION
557
RE-SEND REQUEST PACKET GENERATION PORTION
558
ID STORAGE PORTION
560
ID MANAGEMENT CONTROL PORTION
561
ID MANAGEMENT INPUT PORTION
562
ID MANAGEMENT OUTPUT PORTION
563
RESULT DISPLAY PORTION
581

FIG.29

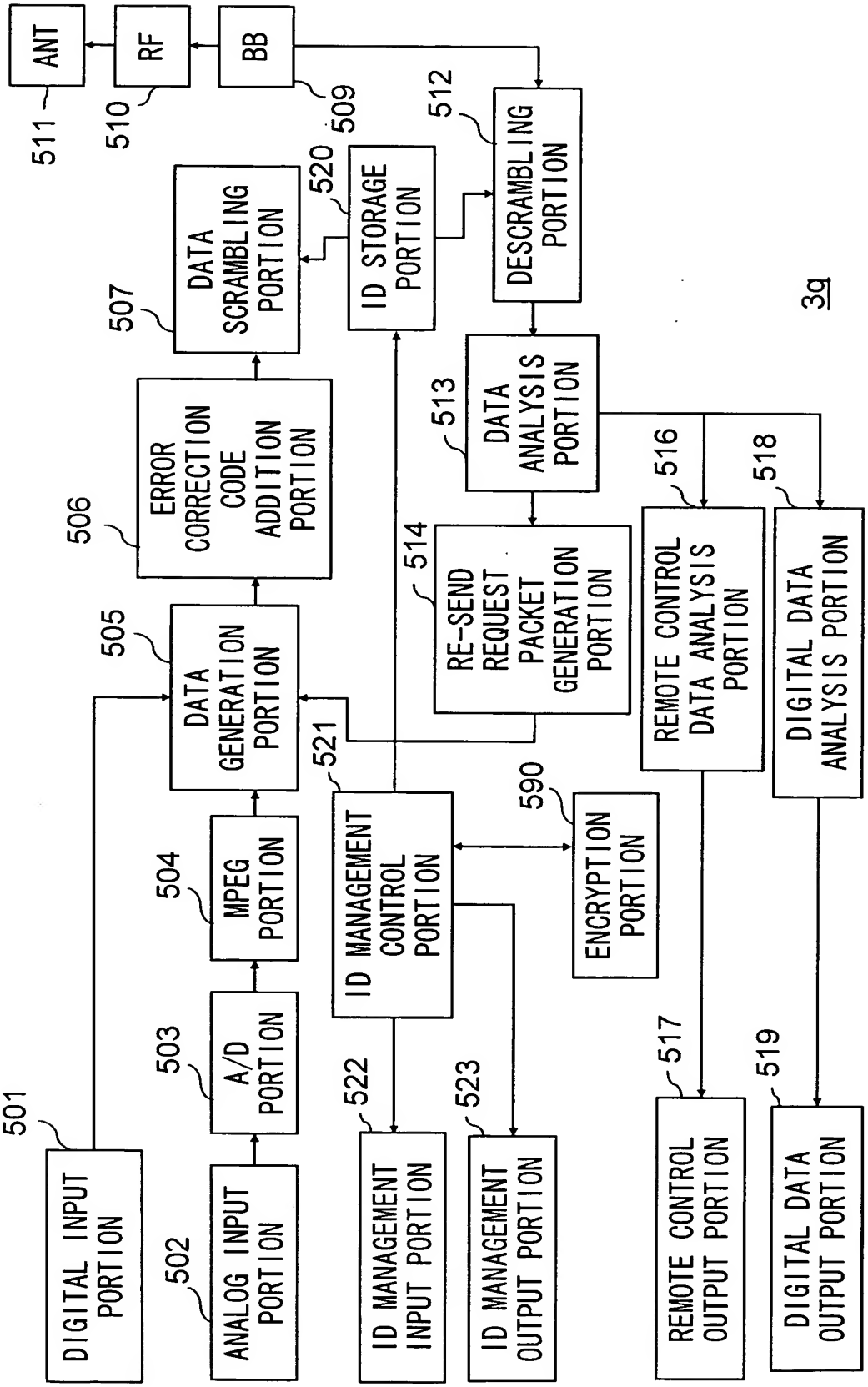

ANT
RF
BB
511
510
509
512
DESCRAMBLING PORTION
520
ID STORAGE PORTION
507
DATA SCRAMBLING PORTION
506
ERROR CORRECTION CODE ADDITION PORTION
513
DATA ANALYSIS PORTION
516
518
505
DATA GENERATION PORTION
514
RE-SEND REQUEST PACKET GENERATION PORTION
REMOTE CONTROL DATA ANALYSIS PORTION
DIGITAL DATA ANALYSIS PORTION
521
590
504
MPEG PORTION
ID MANAGEMENT CONTROL PORTION
ENCRYPTION PORTION
503
A/D PORTION
501
522
523
517
519
DIGITAL INPUT PORTION
ANALOG INPUT PORTION
ID MANAGEMENT INPUT PORTION
ID MANAGEMENT OUTPUT PORTION
REMOTE CONTROL OUTPUT PORTION
DIGITAL DATA OUTPUT PORTION
502
3q

FIG.30

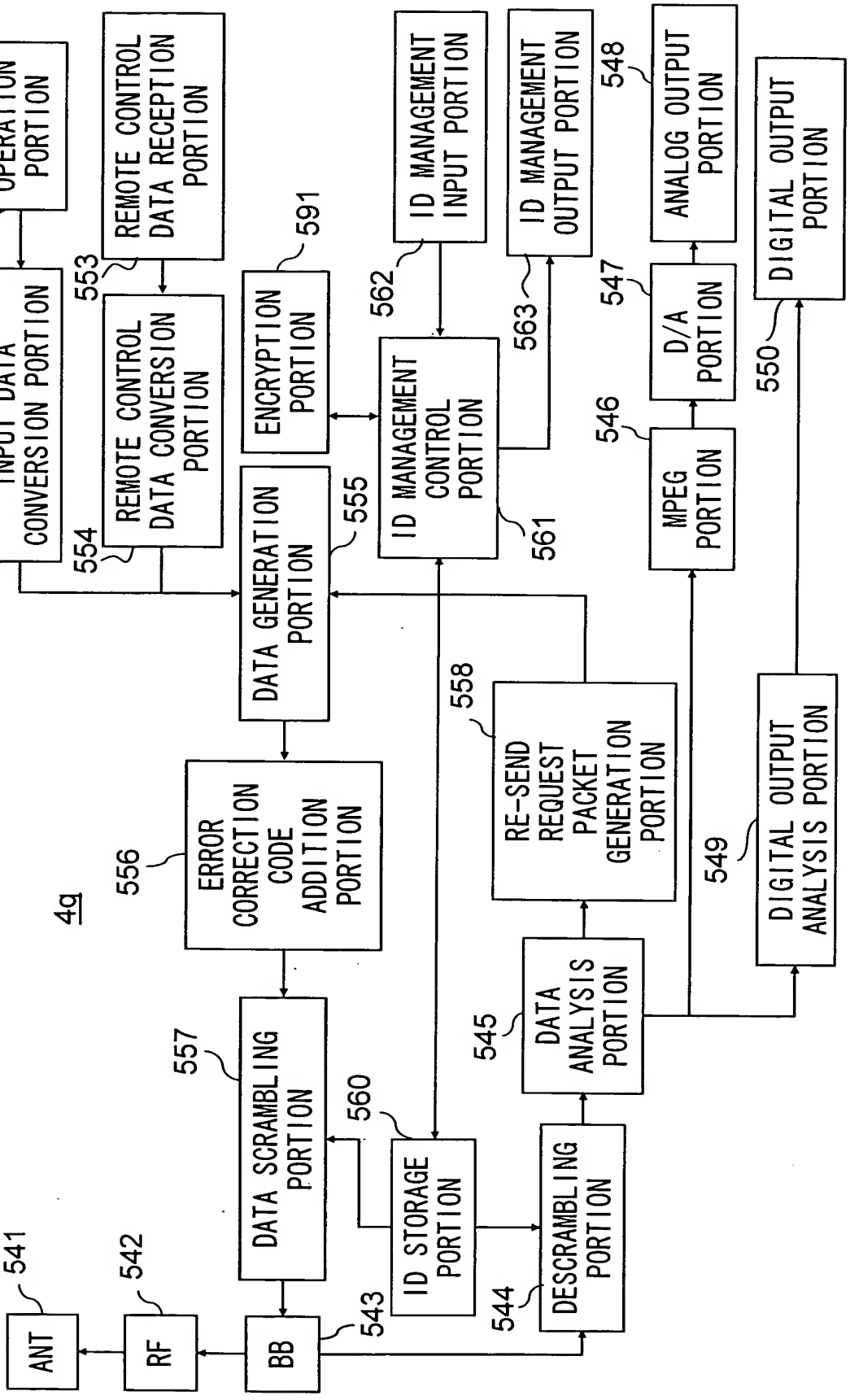

4g
ANT
541
RF
542
BB
543
DATA SCRAMBLING PORTION
557
ERROR CORRECTION CODE ADDITION PORTION
556
DATA GENERATION PORTION
555
INPUT DATA CONVERSION PORTION
552
OPERATION PORTION
551
REMOTE CONTROL DATA CONVERSION PORTION
554
REMOTE CONTROL DATA RECEPTION PORTION
553
ENCRYPTION PORTION
591
ID STORAGE PORTION
560
DESCRAMBLING PORTION
544
DATA ANALYSIS PORTION
545
RE-SEND REQUEST PACKET GENERATION PORTION
558
ID MANAGEMENT CONTROL PORTION
561
ID MANAGEMENT INPUT PORTION
562
ID MANAGEMENT OUTPUT PORTION
563
MPEG PORTION
546
D/A PORTION
547
ANALOG OUTPUT PORTION
548
DIGITAL OUTPUT ANALYSIS PORTION
549
DIGITAL OUTPUT PORTION
550

FIG.31

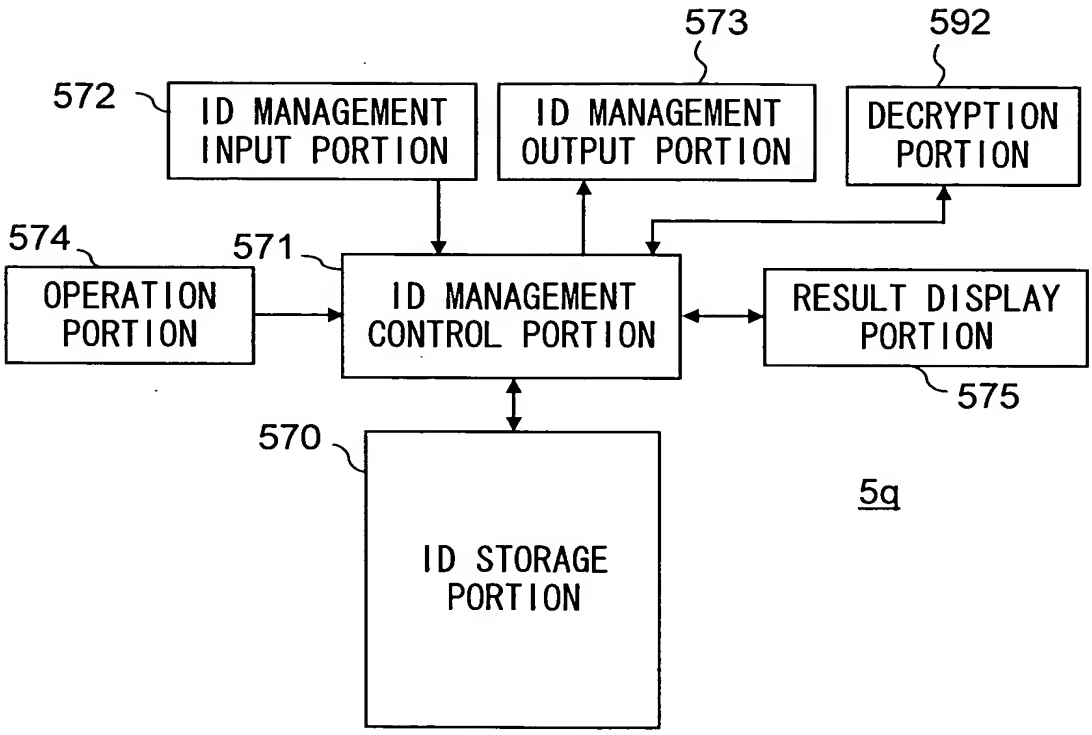

573
592
572
ID MANAGEMENT INPUT PORTION
ID MANAGEMENT OUTPUT PORTION
DECRYPTION PORTION
574
571
OPERATION PORTION
ID MANAGEMENT CONTROL PORTION
RESULT DISPLAY PORTION
575
570
ID STORAGE PORTION
5q

FIG.32

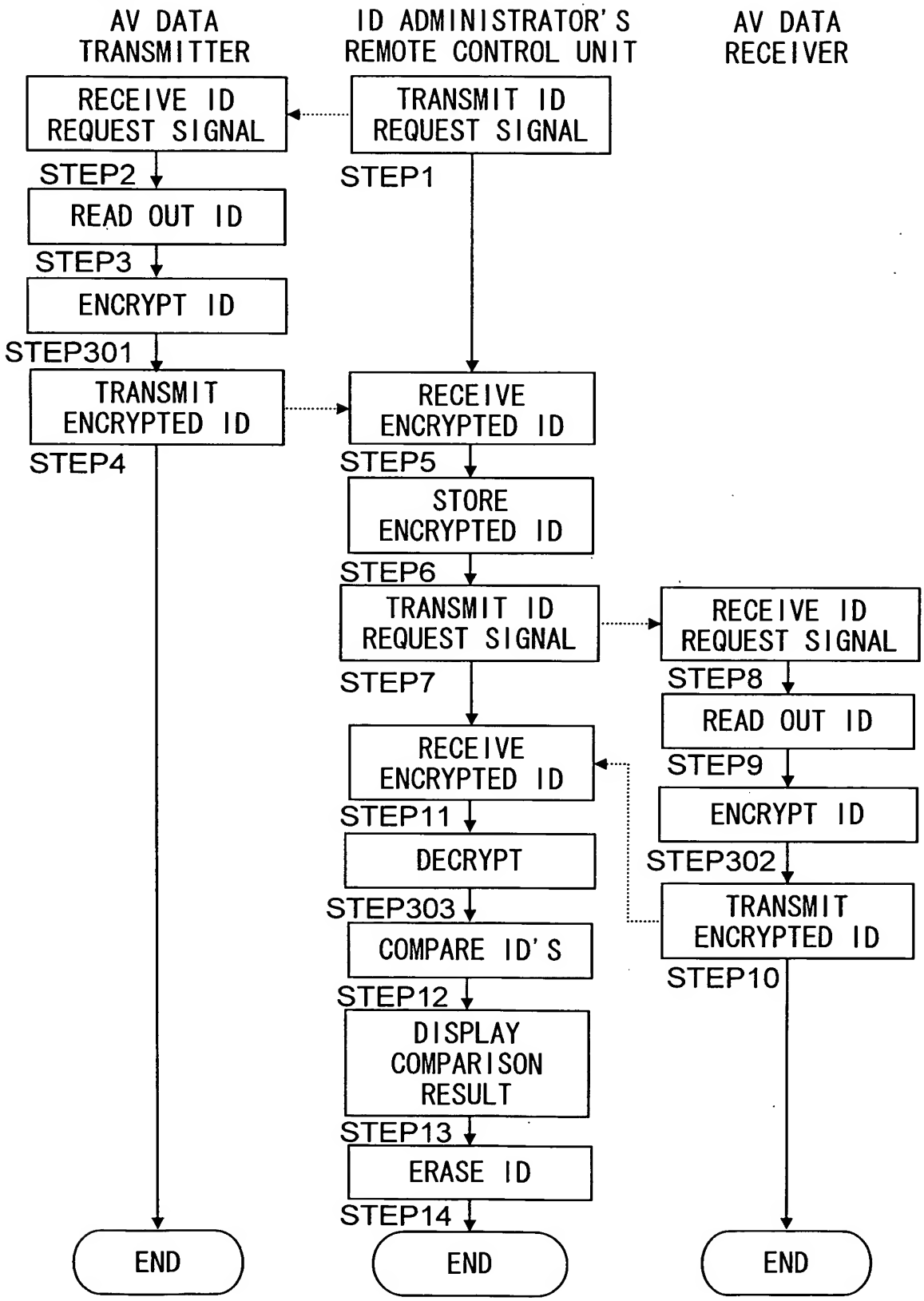

AV DATA TRANSMITTER
ID ADMINISTRATOR'S REMOTE CONTROL UNIT
AV DATA RECEIVER
TRANSMIT ID REQUEST SIGNAL
STEP1
RECEIVE ID REQUEST SIGNAL
STEP2
READ OUT ID
STEP3
ENCRYPT ID
STEP301
TRANSMIT ENCRYPTED ID
STEP4
RECEIVE ENCRYPTED ID
STEP5
STORE ENCRYPTED ID
STEP6
TRANSMIT ID REQUEST SIGNAL
STEP7
RECEIVE ID REQUEST SIGNAL
STEP8
READ OUT ID
STEP9
ENCRYPT ID
STEP302
TRANSMIT ENCRYPTED ID
STEP10
RECEIVE ENCRYPTED ID
STEP11
DECRYPT
STEP303
COMPARE ID'S
STEP12
DISPLAY COMPARISON RESULT
STEP13
ERASE ID
STEP14
END
END
END

FIG.33

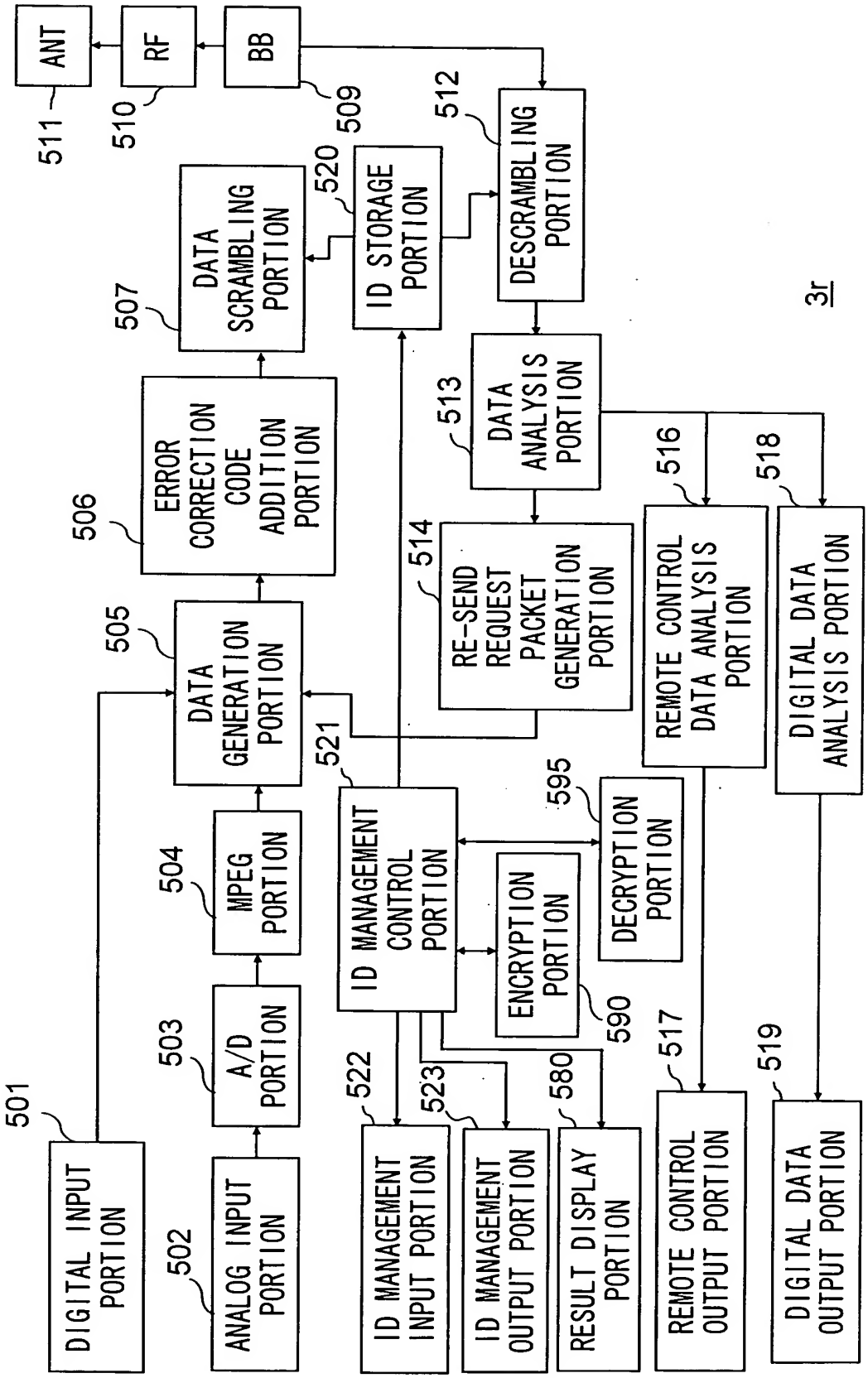

ANT
RF
BB
511
510
509
512
DESCRAMBLING PORTION
520
ID STORAGE PORTION
507
DATA SCRAMBLING PORTION
506
ERROR CORRECTION CODE ADDITION PORTION
513
DATA ANALYSIS PORTION
516
518
505
DATA GENERATION PORTION
514
RE-SEND REQUEST PACKET GENERATION PORTION
REMOTE CONTROL DATA ANALYSIS PORTION
DIGITAL DATA ANALYSIS PORTION
521
595
504
MPEG PORTION
ID MANAGEMENT CONTROL PORTION
DECRYPTION PORTION
ENCRYPTION PORTION
503
A/D PORTION
590
517
519
501
522
523
580
DIGITAL INPUT PORTION
ID MANAGEMENT INPUT PORTION
ID MANAGEMENT OUTPUT PORTION
RESULT DISPLAY PORTION
REMOTE CONTROL OUTPUT PORTION
DIGITAL DATA OUTPUT PORTION
502
ANALOG INPUT PORTION
3r

FIG.34

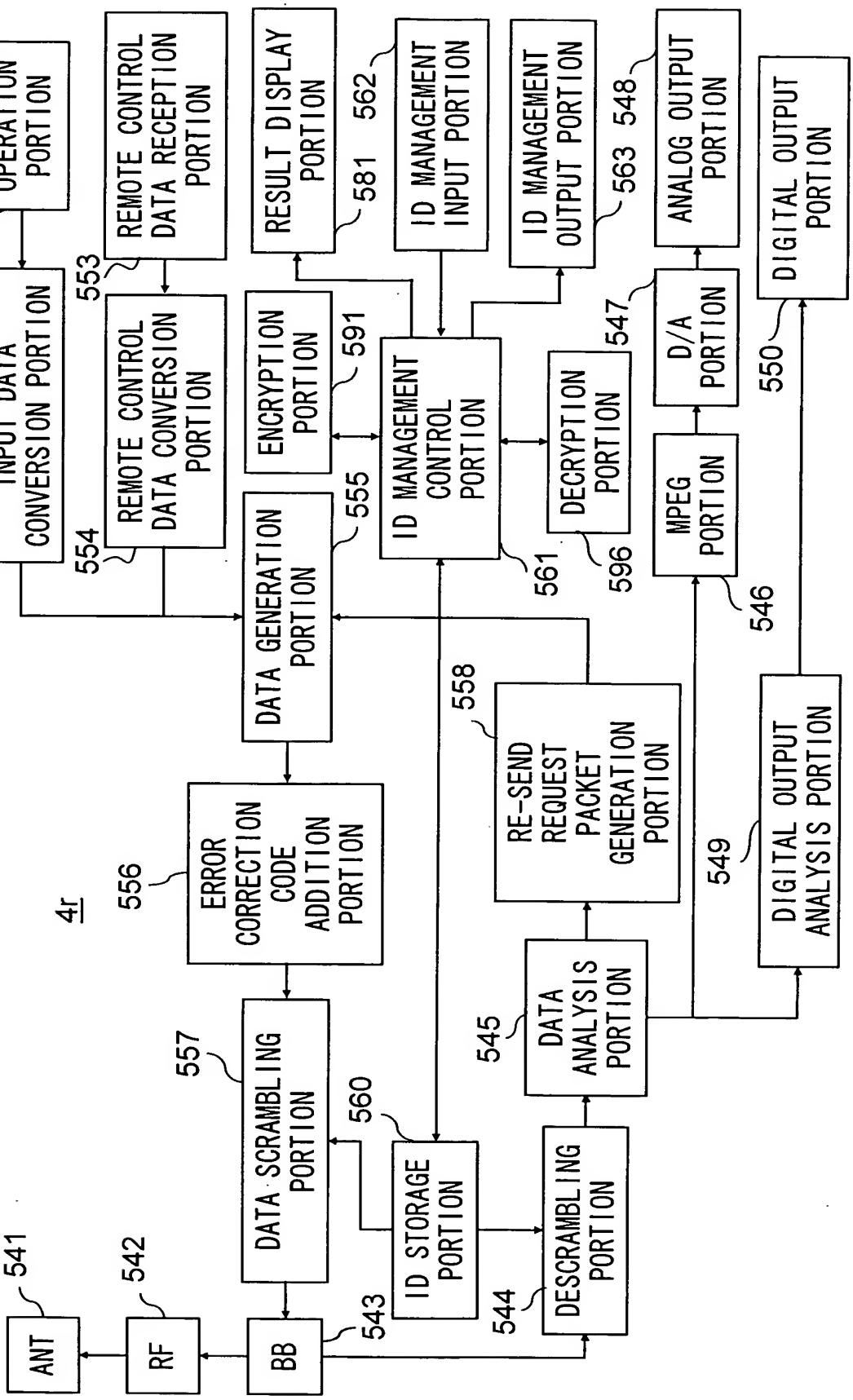

4r
ANT
541
RF
542
BB
543
DESCRAMBLING PORTION
544
DATA ANALYSIS PORTION
545
MPEG PORTION
546
D/A PORTION
547
ANALOG OUTPUT PORTION
548
DIGITAL OUTPUT PORTION
550
DIGITAL OUTPUT ANALYSIS PORTION
549
ID STORAGE PORTION
560
DATA SCRAMBLING PORTION
557
ERROR CORRECTION CODE ADDITION PORTION
556
RE-SEND REQUEST PACKET GENERATION PORTION
558
DATA GENERATION PORTION
555
DECRYPTION PORTION
596
ID MANAGEMENT CONTROL PORTION
561
ENCRYPTION PORTION
591
ID MANAGEMENT OUTPUT PORTION
563
ID MANAGEMENT INPUT PORTION
562
RESULT DISPLAY PORTION
581
REMOTE CONTROL DATA CONVERSION PORTION
554
REMOTE CONTROL DATA RECEPTION PORTION
553
INPUT DATA CONVERSION PORTION
552
OPERATION PORTION
551

FIG.35

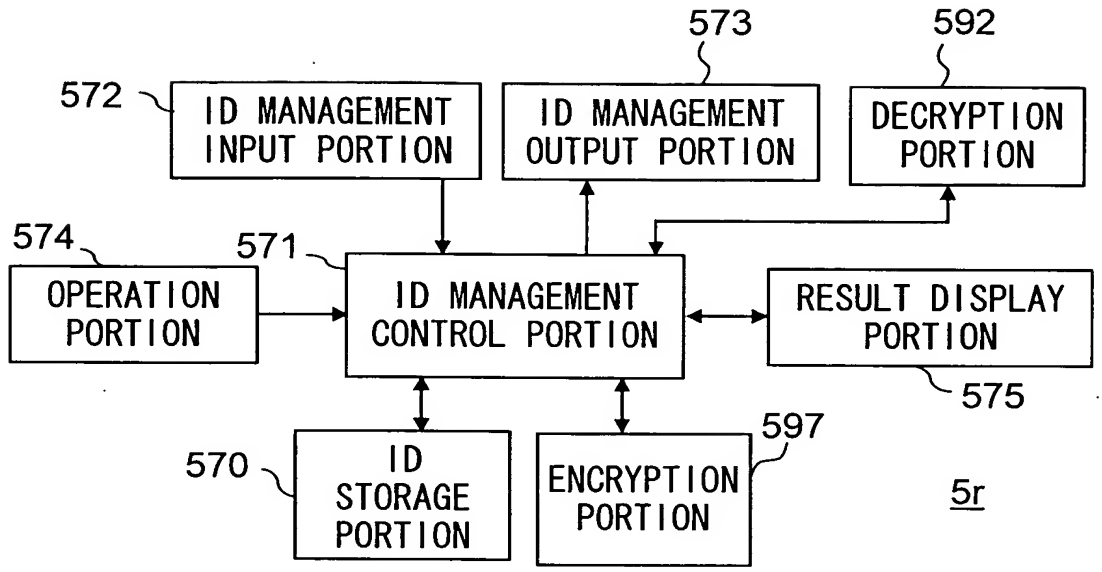

573
592
572
ID MANAGEMENT INPUT PORTION
ID MANAGEMENT OUTPUT PORTION
DECRYPTION PORTION
574
571
OPERATION PORTION
ID MANAGEMENT CONTROL PORTION
RESULT DISPLAY PORTION
575
597
570
ID STORAGE PORTION
ENCRYPTION PORTION
5r

FIG.36

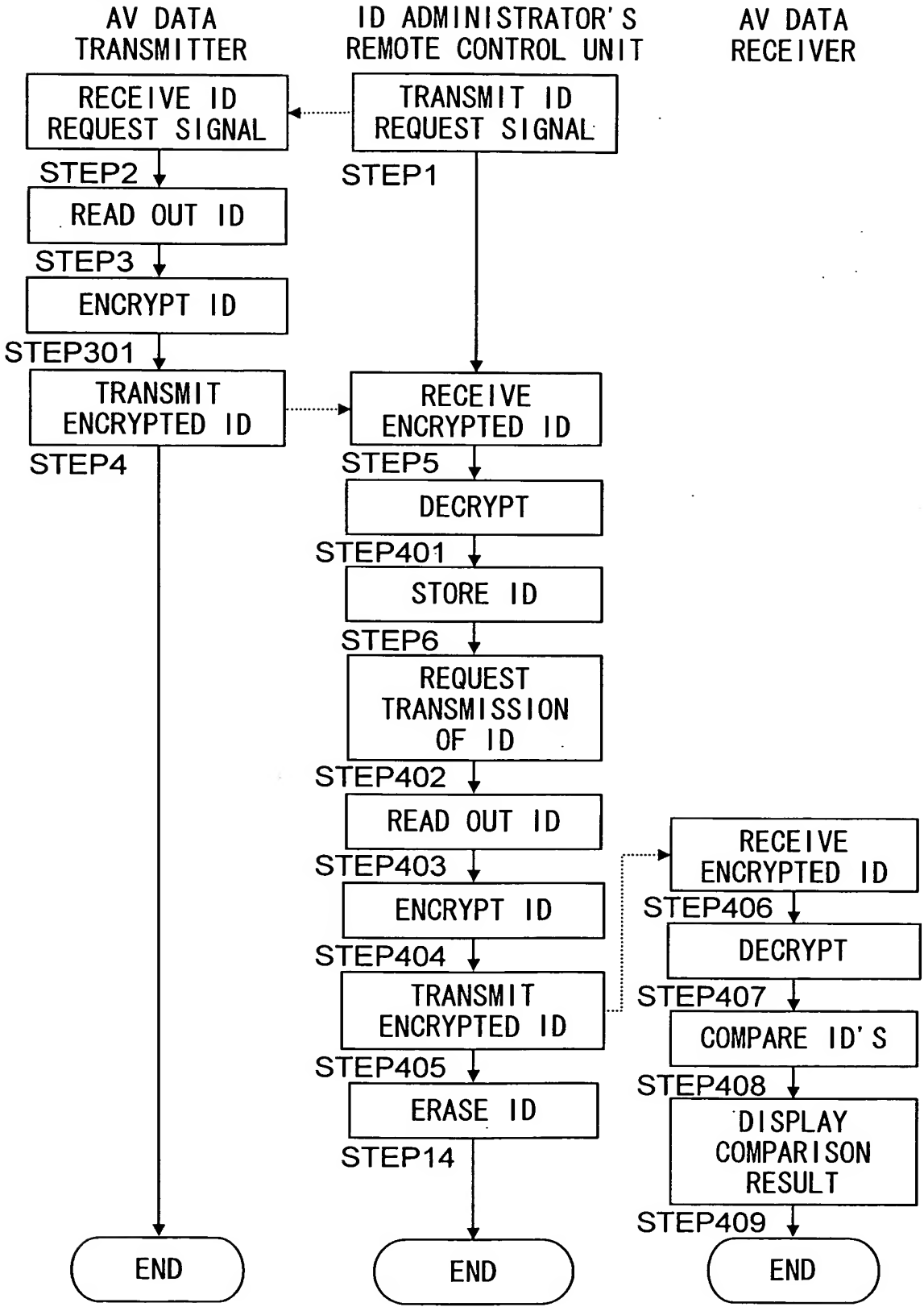

AV DATA TRANSMITTER
ID ADMINISTRATOR'S REMOTE CONTROL UNIT
AV DATA RECEIVER
RECEIVE ID REQUEST SIGNAL
TRANSMIT ID REQUEST SIGNAL
STEP1
STEP2
READ OUT ID
STEP3
ENCRYPT ID
STEP301
TRANSMIT ENCRYPTED ID
RECEIVE ENCRYPTED ID
STEP4
STEP5
DECRYPT
STEP401
STORE ID
STEP6
REQUEST TRANSMISSION OF ID
STEP402
READ OUT ID
STEP403
ENCRYPT ID
STEP404
TRANSMIT ENCRYPTED ID
RECEIVE ENCRYPTED ID
STEP406
DECRYPT
STEP407
COMPARE ID'S
STEP405
ERASE ID
STEP408
DISPLAY COMPARISON RESULT
STEP14
STEP409
END
END
END

FIG.37

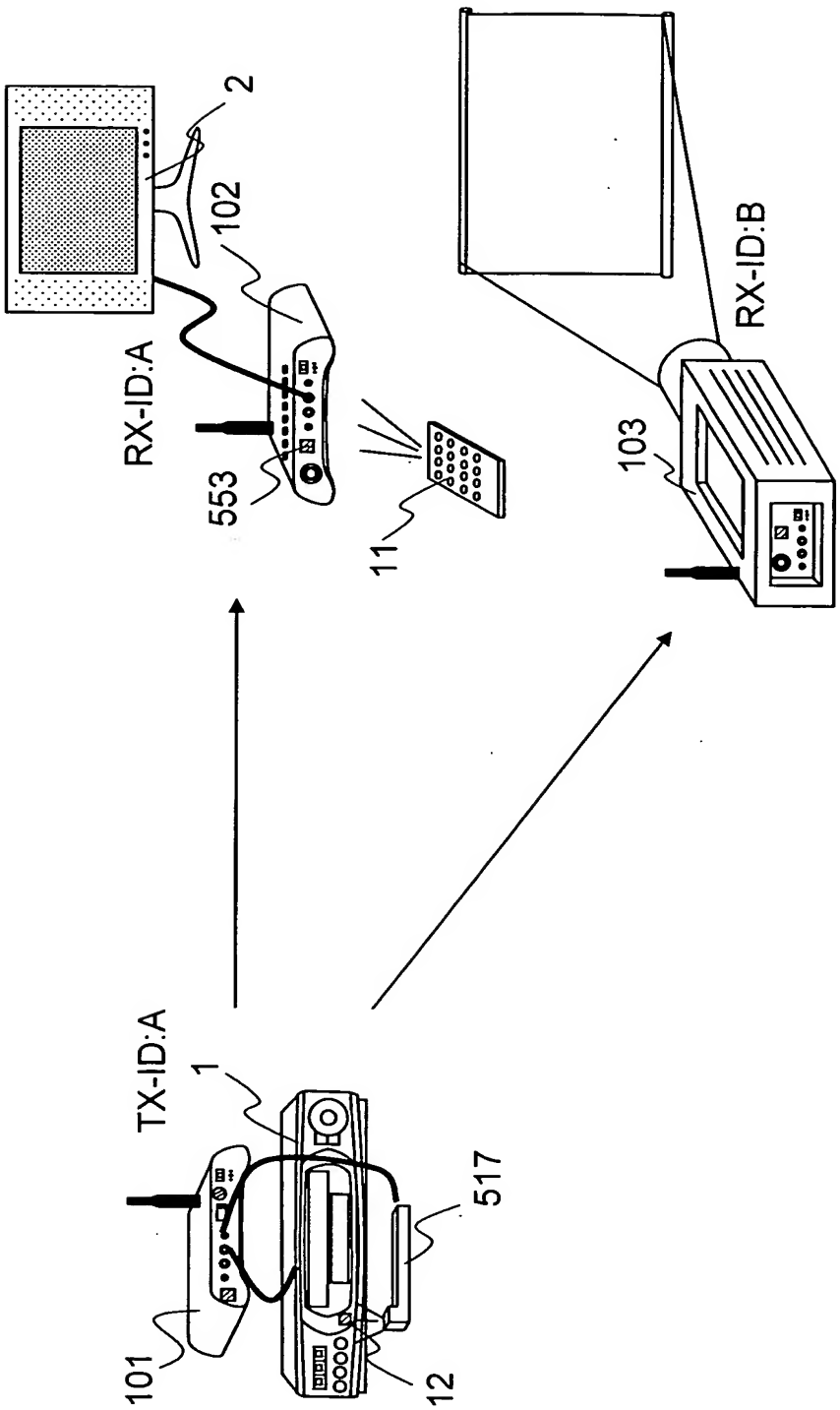


FIG.38

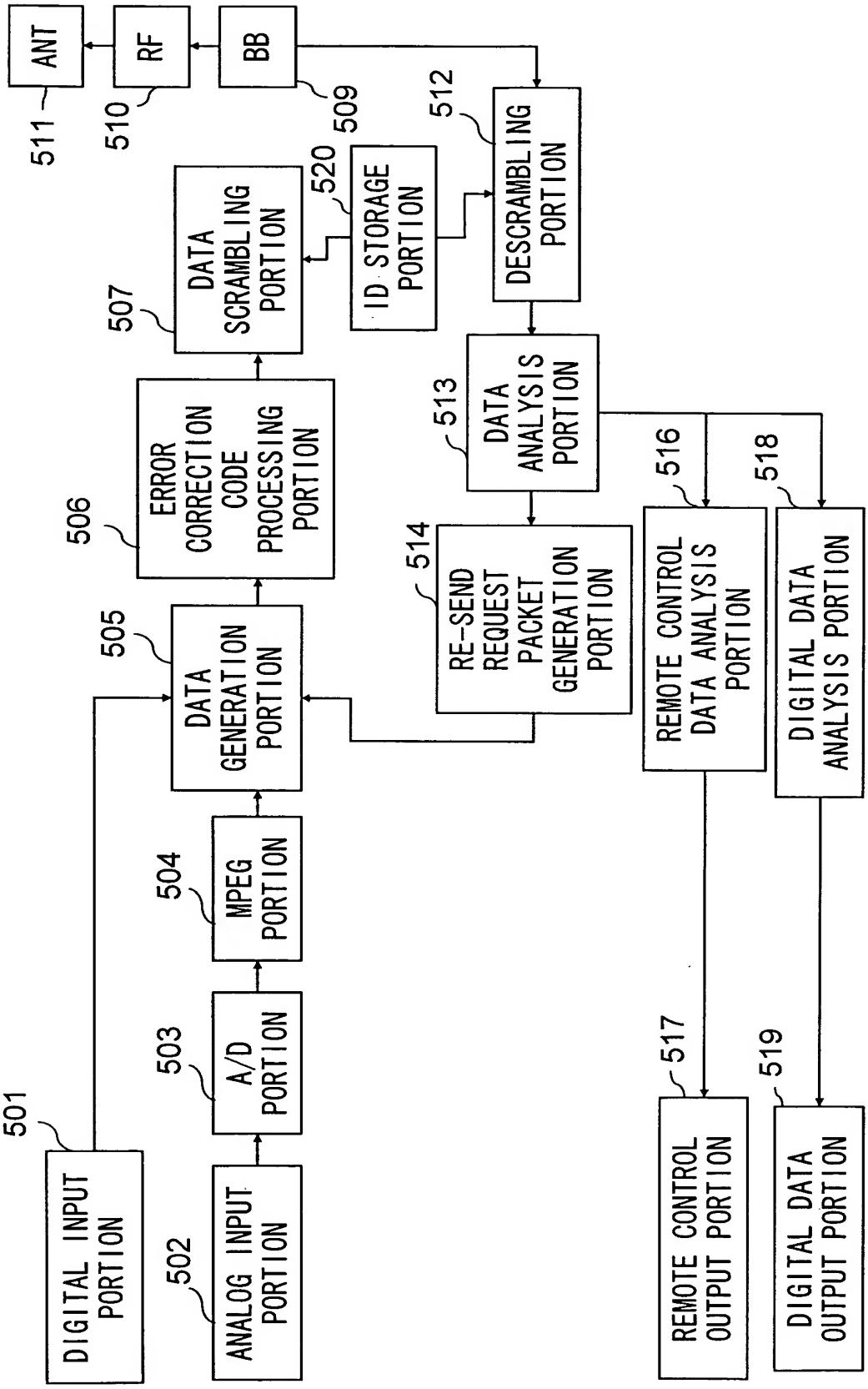
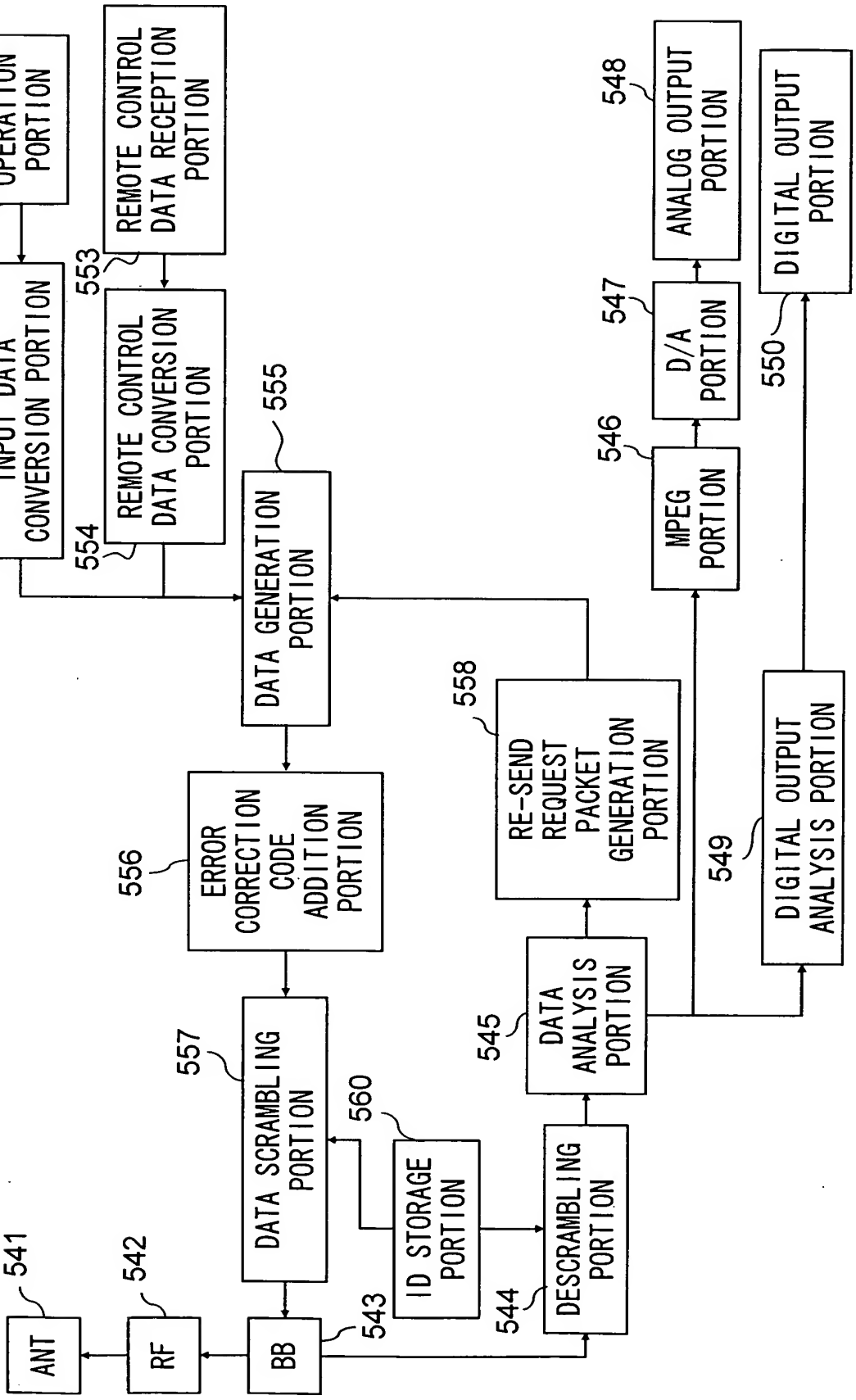

ANT
RF
BB
511
510
509
512
520
507
DATA SCRAMBLING PORTION
ID STORAGE PORTION
DESCRAMBLING PORTION
506
ERROR CORRECTION CODE PROCESSING PORTION
513
DATA ANALYSIS PORTION
505
DATA GENERATION PORTION
514
RE-SEND REQUEST PACKET GENERATION PORTION
516
REMOTE CONTROL DATA ANALYSIS PORTION
518
DIGITAL DATA ANALYSIS PORTION
504
MPEG PORTION
503
A/D PORTION
501
DIGITAL INPUT PORTION
502
ANALOG INPUT PORTION
517
REMOTE CONTROL OUTPUT PORTION
519
DIGITAL DATA OUTPUT PORTION

FIG.39


ANT
541
RF
542
BB
543
DESCRAMBLING PORTION
544
DATA ANALYSIS PORTION
545
MPEG PORTION
546
D/A PORTION
547
ANALOG OUTPUT PORTION
548
DIGITAL OUTPUT ANALYSIS PORTION
549
DIGITAL OUTPUT PORTION
550
OPERATION PORTION
551
INPUT DATA CONVERSION PORTION
552
REMOTE CONTROL DATA RECEPTION PORTION
553
REMOTE CONTROL DATA CONVERSION PORTION
554
DATA GENERATION PORTION
555
ERROR CORRECTION CODE ADDITION PORTION
556
DATA SCRAMBLING PORTION
557
RE-SEND REQUEST PACKET GENERATION PORTION
558
ID STORAGE PORTION
560